ENGINEERING NEWS-RECORD

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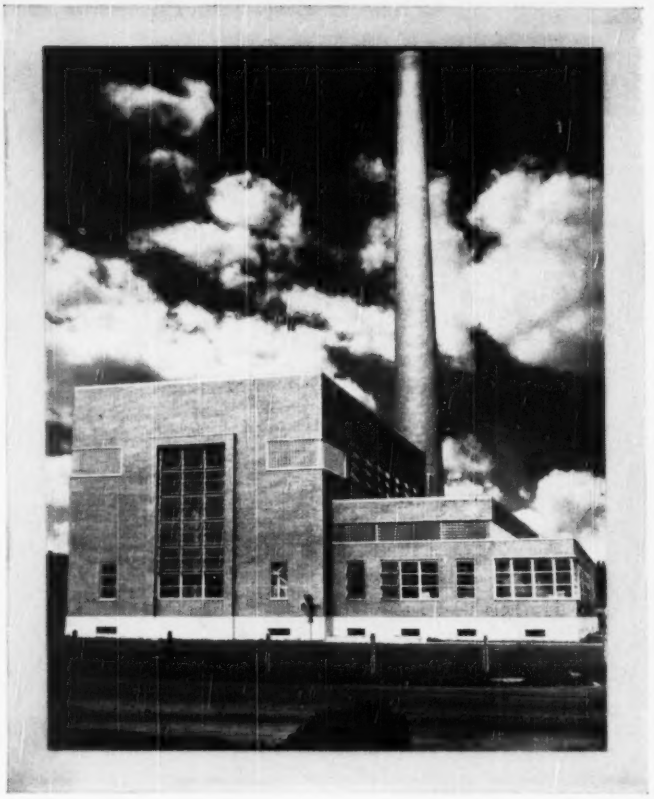
DE LEUW, CATHER COMPANY
CONSULTING ENGINEERS
CHICAGO, ILLINOIS

This hospital power plant cures pipe ills with BYERS WROUGHT IRON



Since water is the life-blood of every power plant, an unfailing supply is of first importance. In the recently-completed plant at the Kankakee (Illinois) State Hospital, the job of safeguarding this service was entrusted to wrought iron. Over thirty tons of Byers Galvanized Wrought Iron pipe, in sizes from $\frac{1}{2}$ to 8-inches, was installed in the supply system, and in extending the water distribution system in certain adjacent areas. The material was already being utilized for maintenance work on condensate return lines in the steam distribution system.

Power plants in all sections of the country are using this same time-tried method of protecting water lines. The wisdom of the choice is confirmed by many comparative records of wrought iron still serving in water lines after thirty—forty—and even fifty years, in areas where low-first-cost piping materials required repairs and replacement in a fraction of the time. The condensate return application is another that follows established engineering precedent. Condensate is always aggressive, and wrought iron has proved itself remarkably successful in resisting attack.

The corrosion-resisting properties of wrought iron are the direct result of its unusual composition and structure, which are duplicated in no other material. Tiny fibers of glass-like silicate slag, threaded through the body of high-purity iron, halt and disperse corrosive attack. These fibers also help to anchor the initial protective scale, which shields the underlying metal.

It is helpful, in applying wrought iron in the many places where it can reduce repairs and maintenance, to know something of how it is made, how it resists corrosion, and where it has been used. All this is digested in the booklet, THE A B C's OF WROUGHT IRON. May we send you a copy?

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, Salt Lake City, San Francisco. Export Division: New York, N. Y.

Corrosion costs you more than wrought iron

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It's made with vinyl—reinforced with super-strong rayon. And it's 9 ways better than ordinary welding hose—as listed in the blueprint. Ask the G.T.M. for full details on Goodyear's new Dual Welding Hose—latest addition to the Goodyear family of hoses built to the world's highest standard of quality—or write: Goodyear, Akron 16, Ohio.

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ENGINEERING NEWS-RECORD

VOLUME 144 **FEBRUARY 16, 1950** **NO. 7**

WALDO G. BOWMAN
Editor

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Another Northwest in Rock! — and did you ever notice how many Northwests you see in rock?

It has everything a real Rock Shovel needs and when you have a real Rock Shovel you never have to worry about output in any kind of digging.

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MAKE YOUR KEY MACHINE A REAL ROCK SHOVEL

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CRAWLER and TRUCK MOUNTED SHOVELS-CRANES-DRAGLINES-PULLSHOVELS

What can research do for a specification product?

We manufacture a "specification" product—cast iron pressure pipe. It is purchased under standard specifications set up by engineering organizations representing users of the product, consultants and manufacturers. Meet the specifications and the customer is satisfied. The question is whether the manufacturer should be satisfied.

About 20 years ago we decided to find out what research could do for a "specification" product. The function of Industrial Research was then, as it is now, to develop a better product at the same, or if possible, at lower cost. We built and equipped a Research Laboratory.

What research has since done for our product is a result best known to our customers! After all, specifications only establish a "floor" beneath which quality standards must not fall. Through research we have steadily elevated those standards and, through quality control, have seen to it that they are adhered to.

Progress made by individual companies eventually leads to higher standards which must be met by all makers of the product. And progress in the production of cast iron pressure pipe is important to water, gas and sanitation utilities as well as to the public they serve. The key to such progress is Research.

To further our Research program we recently dedicated a new, even larger and finer research laboratory and developmental foundry at our plant and main office in Burlington, New Jersey.

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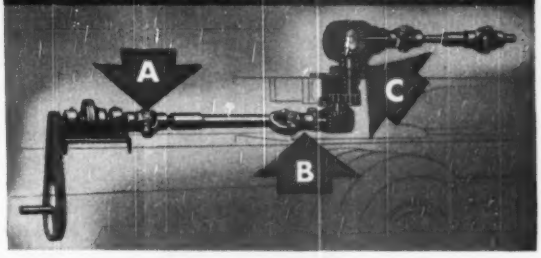
America's largest producer of cast iron pressure pipe

NO HOIST HOSES NEEDED* to operate this FRUEHAUF Dump Trailer!

This Fruehauf Dump Trailer is a model YGT5517-21 with 21 cubic yd. capacity body. It is equipped with Gravity-Tandem Suspension.

*It's Equipped to operate with Fruehauf's Patented POWER COUPLER



TROUBLESOME hydraulic hoses are not needed to operate this Dump Trailer. The Fruehauf Power Coupler utilizes the motive power from your tractor to operate the hydraulic cylinder of the Dump Trailer at any time!

And . . . this new idea in power transmission does not limit the use of your tractor to pulling a Dump Trailer! The Power Coupler king-pin is ingeniously constructed for use with Platforms, Carryalls, Vans, Tank-Trailers, etc.

Let your Fruehauf man show you the advantages of the Fruehauf Dump Trailers—and they are many—as well as those of the *Fruehauf Power Coupler*. Coupler driven hoists on Fruehauf Dump Trailers "double-up" on the use of your tractor—permitting you to pull your Trailers in shuttle *without costly, time-consuming change-overs.*

Fruehauf's Power Coupler may be used wherever power transmission is needed between a tractor and Trailer. Diagram above shows how tractor power is transmitted from chain drive through a torque regulator and universal joint to drive shaft (A). A second universal joint and gear assembly (B) transmits power through hollow king-pin (which is strong enough to withstand a direct pull of 115 tons). The bottom king-pin gear (C) transmits power into the Trailer gear box to operate the hoist mechanism.

FRUEHAUF TRAILER COMPANY

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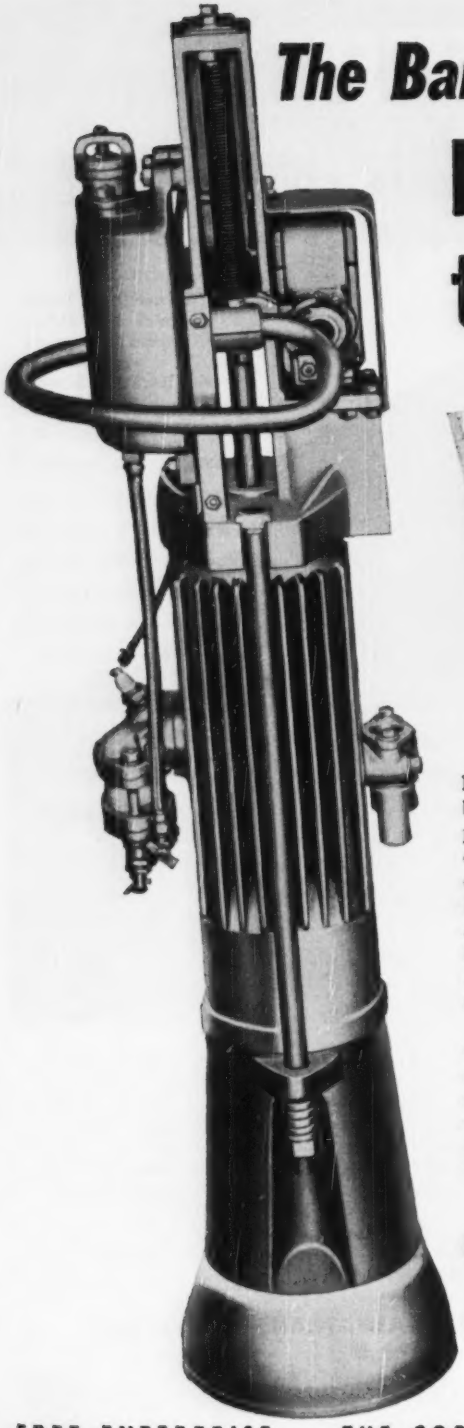
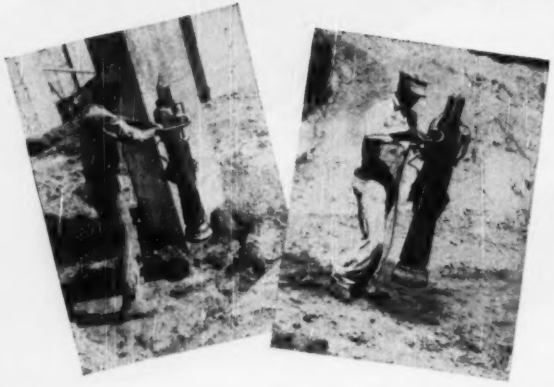
FRUEHAUF Trailers

WORLD'S LARGEST BUILDERS OF TRUCK-TRAILERS



The Barco Pegson Rammer

Lets one man do the work of five



Barco revolutionizes soil compaction! By actual tests, certified by Government agencies, one man using the new Barco Rammer performed 97% soil compaction with lifts of 12" to 20" refilling ditches as contrasted to the 4" lift obtained by conventional methods. One man doing the work of 5! The Barco Pegson Rammer is entirely self-contained, requires practically no maintenance. Anyone can learn to operate it skillfully and safely after only a few minutes instruction. No lifting, no straining, no carrying. A slight tilt on the handle will "walk" the Rammer where you want it to go.

Especially adapted to tamping close to abutments and other wall structures, and in narrow ditches and hard-to-reach places, where rollers can't reach. Don't tie up your funds in expensive equipment. Let the Rammer cut your costs. For more information write for catalog or demonstration, Barco Manufacturing Company, 1814B Winnemac Avenue, Chicago 40, Illinois. In Canada: The Holden Co., Ltd., Montreal, Canada.

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Gasoline Rammer

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OVER 60% OF ALL EUCLIDS SOLD ARE REPEAT ORDERS . . .

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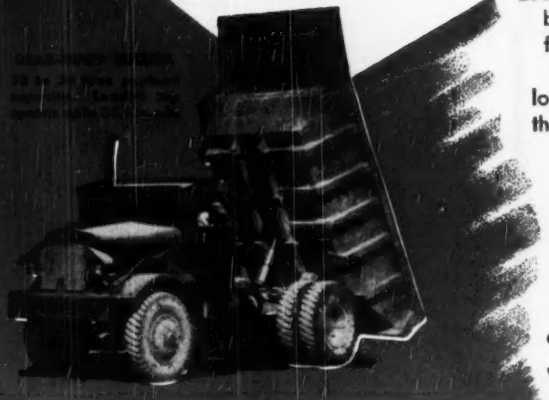

Leading contractors and industrial users buy "Eucs" because they are designed and built throughout for heavy off-the-highway hauling. And because Euclids are job proved for high production at the lowest cost per ton or yard moved, owners add to their fleets as more equipment is needed.

Nine out of every 11 Euclids built are still in use today. Their ability to stay on the job year after year under a wide range of operating conditions means more yards moved at greater profit.

Euclid owners also know they can depend on prompt, efficient service from Euclid's world-wide distributor organization.

Write for information on the complete line of Euclid equipment or see your Euclid Distributor today.

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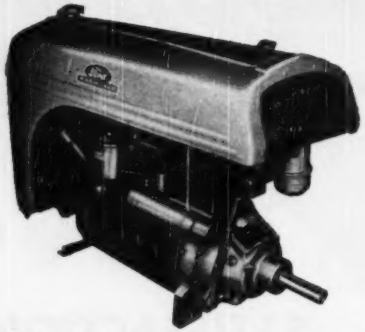
EUCLIDS *Move the Earth*

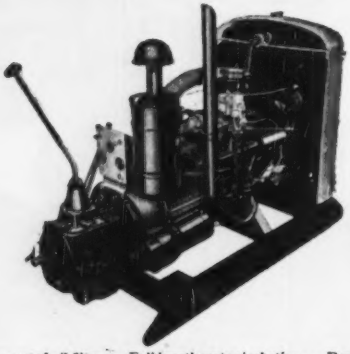
IT'S HERE...

NEW Ford "120" POWER UNIT



Removable dry cylinder liners . . . 3-ring pistons, chrome top ring . . . Moly-chrome valve seat inserts . . . Circulating cooling system with thermostat . . . Replaceable thin shell main and connecting rod bearings . . . Counterbalanced crankshaft . . . Magneto or battery ignition . . . Oil filter . . . Heavy duty oil bath air cleaner.

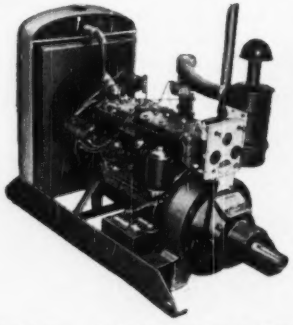
NEW Ford "226" POWER UNIT



Pad mounted oil filter . . . Full length water jacketing . . . Recirculating pressure cooling system with thermostat . . . Counterbalanced crankshaft . . . Heavy duty, replaceable thin shell copper lead bearings . . . High lift camshaft . . . Balanced carburetion (downdraft or updraft) . . . Heavy duty oil bath air cleaner.

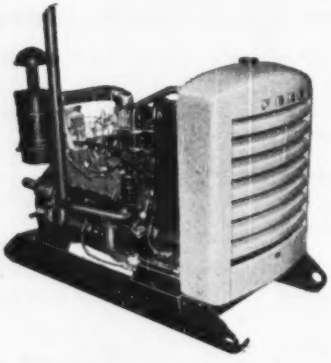
Complete

NEW Ford "254" POWER UNIT



Pad mounted oil filter . . . Recirculating pressure cooling system with thermostat . . . Autothermic pistons with chrome top compression ring . . . High lift camshaft . . . Hard faced cobalt exhaust valve (free type valves) . . . Counterbalanced crankshaft . . . Heavy duty, replaceable thin shell copper lead bearings . . . Balanced carburetion (downdraft or updraft) . . . Air cleaner.

NEW Ford "239" POWER UNIT



Dual water pumps . . . Full length water jacketing *plus* . . . Recirculating pressure cooling system with thermostat . . . Fully counterbalanced crankshaft . . . Replaceable thin shell bearings . . . Moly-chrome valve seat inserts . . . Dual downdraft carburetion . . . Oil filter and air cleaner.

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Specifications of Ford Industrial Engine Power Units

Model	Cylinders	Bore and Stroke	Displ. cu. in.	Dyn. B.H.P.	Max. Torque	Equipment Available
120	4	3⅛ x 3¾	120	38 @ 2400	92#' @ 1600	Clutch; SAE #5 housing; power take-off; Ford housing; 3- or 4-speed transmission; governor. (Available as closed type power unit or engine assembly.)
226	6	3.3 x 4.4	226	80 @ 2400	182#' @ 1200	Clutch; SAE #3 or #4 housing; power take-off; Ford housing; 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.)
239	V-8	3⅛ x 3¾	239	85 @ 2400	187#' @ 1600	Clutch; SAE #3 or #4 housing; power take-off; Ford housing with 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.)
254	6	3.5 x 4.4	254	95 @ 2400	212#' @ 1200	Clutch; SAE #3 or #4 housing; power take-off; Ford housing; 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.)
337	V-8	3½ x 4⅛	337	117 @ 2400	257#' @ 1600	Clutch; 5-speed direct-in-fifth transmission; overdrive transmission, direct drive power take-off. (Available as closed or open type power unit, or engine assembly.)

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Industrial Engine Power Units
ARE RIGHT 3 WAYS
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1. **RIGHT POWER**—five great models in wide variety of units. Each one ready to run!
2. **RIGHT FEATURES**—all the latest advancements of Ford's famed progressive engineering.
3. **RIGHT SERVICE**—as near as your nearest Ford Dealer, clear around the world.

Line of NEW Ford INDUSTRIAL ENGINE POWER UNITS!

NEW Ford "337" POWER UNIT

Drop forged fully counterbalanced crankshaft, hardened journals . . . Heavy duty, replaceable thin shell copper lead bearings . . . Hard faced cobalt exhaust valves (free type valves) . . . Autothermic pistons, chrome top ring . . . Dual centrifugal water pumps . . . Full length water jackets . . . Recirculating pressure cooling system with thermostat . . . Dual downdraft carburetion . . . Oil filter and air cleaner.

YOUR JOB IS WELL-POWERED WHEN IT'S FORD-POWERED

● Ford Industrial Power Units are now available in five great models . . . four, six and V-type eight cylinder . . . 120 to 337 cu. in. displacement. *COMPLETE* with radiator . . . instrument panel and S.A.E. or Ford type housings. Foot or skid mounted. Closed and open types. Made throughout to Ford's famed hi-precision manufacturing standards. Completely tested and *READY TO RUN!*

Ford Dealers, Ford District Sales Offices and the Ford Industrial Engine Department are at your service in developing engineering recommendations showing how Ford Industrial Power Units can be most effectively applied to your job. *Mail coupon below for Ford Industrial Power Unit Folder.*

For Special Literature on Ford Industrial Power Units, use this coupon . . .

Industrial Engine Department

FORD MOTOR COMPANY

DEARBORN, MICHIGAN

Send me comprehensive literature about the new Ford Industrial Power Units. Address: **Industrial Engine Dept., Ford Motor Co., Dearborn, Mich.**

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MORE for your MONEY IN THIS NEW 3/4 YD. LORAIN TL-25

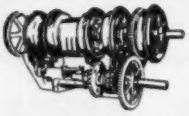
Thew 25 Lorain

Gives You More of Everything . . .

MORE OUTPUT . . .

The Lorain TL-25 is the newest machine in the 3/4 yd. class . . . It's packed with power and speed for fast, snappy performance to produce more working cycles per minute and more yardage per day . . . The shovel has an independent cable crowd with plenty of digging power delivered right where you need it — at the dipper teeth.

MORE SIMPLICITY . . .

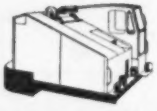


Here's a machine that's easier to understand, quicker to service, simpler to maintain . . . Each major component — clutch shaft (illustrated), engine, hoist shaft, cab, crawler propelling mechanism, may be removed and replaced as one unit. All 5 clutches are identical — you'll find more interchangeable parts on the TL-25 than on any other machine.

MORE CRAWLER MOUNTINGS

3 Crawler mountings are available for the TL-25 — all have 2 travel speeds, are chain driven, are equipped with oil-enclosed propelling mechanism, have 22" wide drop-forged treads and 4-way tread and travel lock . . . Crawlers are available in 10 ft. and 12 ft. lengths and in the wide gauge model with 11' 8" overall width for straddling ditches.

MORE "EXTRAS" . . .



There's no charge for desirable "extras" when you buy a Lorain TL-25. All desirable "extras" are standard equipment including — 2 crawler travel speeds in both directions; power load-lowering; operating lights; electric starter and generator . . . The Lorain TL-25 is not a stripped-down, priced-down machine . . . It's a complete ready-to-work package.

MORE "LONG-LIFE" FEATURES . . .

The Lorain TL-25 abounds in new, modern features for longer life . . . All gears are machine cut; all gears, except 2, are oil-enclosed; 18 anti-friction bearings are used on the clutch shaft alone; turntable hook rollers are mounted on drop-forged brackets; crawler treads and rollers are drop forgings, with heat-treated wearing surfaces . . . And there are scores more of such features.

MORE SELECTION . . .

The Lorain TL-25 is only one machine in the TL-"Series" line of products which offers an array of capacities, interchangeable booms and mountings that makes it possible for you to select the right machine for your job from 90 possible combinations. Among these is a selection of 12 different rubber-tire carriers of 2-engine and single-engine types.

Send For This New Book!

Here's a book you must read to keep up-to-date on the latest in shovel-crane developments — it shows primary design details, explains what they will do for you on your jobs. Ask your nearby Thew-Lorain Distributor for a copy . . . or write to . . .

THEW SHOVEL CO.
LORAIN, OHIO

THEW **LORAIN**®

SHOVELS • CRANES • CLAMSHELLS • DRAGLINES
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Another BWH First!

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(with Wire Braid Tube!)

BREAKS ALL PERFORMANCE RECORDS!

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3. Absolutely no evidence of hardening or swelling of the tube!
4. Amazing new construction locks tube between two braids of wire . . . makes recoupling quick and easy!
5. Cover is oil, grease, heat, sun and abrasion resistant!
6. Flexible and DURABLE . . . Your nearest BWH distributor will be glad to demonstrate the whip-like flexibility of Concord #20.

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- RIGID RADIUS FORMS
- FLEXIBLE FORMS
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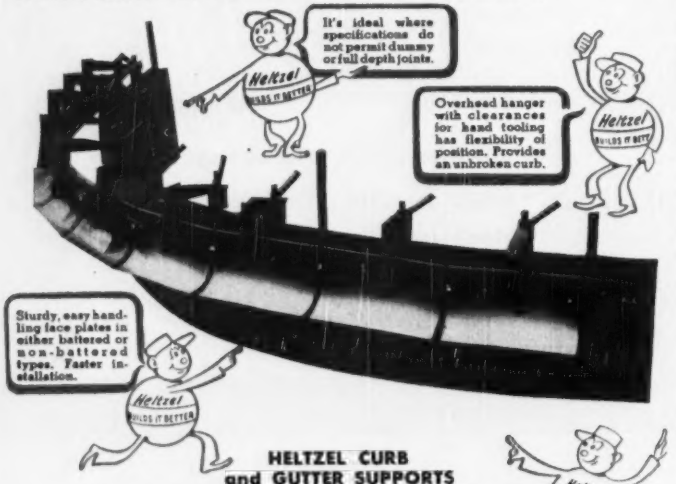
It's ideal where specifications do not permit dummy or full depth joints.
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NEWS BRIEFS

Half a Dozen for Army—Allatoona Dam power plant, on Georgia's Etowah River, has begun generation, the sixth Army hydroelectric station to go on the line. Another 36,000 kw unit, twin to that which has begun generation, will begin to operate in April.

Come and Get 'em—Printed copies are available of the fourth edition of the Commercial Standard for Structural Fiber Insulating Board, CS42-49. The revision was made by the Insulating Board Institute. Copies are available from the Superintendent of Documents, Government Printing Office, Washington, 25, D. C., for 10 cents each.

Playing the Market—North Carolina's Highway Commission wants the next rural road bond issue by the state to be for $75,000,000 rather than $50,000,000, as has been approved. Chairman Henry Jordan wants to take advantage of the present good market.

Never Rains There!—Los Angeles' city council has ok'd plans for a $1,000,000 storm channel to drain the city's International Airport. Financed by the county flood control district, the channel will remove flood waters which frequently inundate landing strips.

Washington Won't Like It—R. A. Peterson, president of Allied Building Credits, Inc., of Los Angeles, told the American Bankers Association recently that about 800,000 dwellings will be built this year in the United States. Federal housing officials have been calling for 1,500,000.

No Complaint—Reclamation Bureau force account construction in the fiscal year ended last June was only 2.6 percent of the $217-million program. That was the smallest percentage in years, the bureau is happy to point out. In the previous fiscal year, force account work totalled 5.4 percent.

Opportunity Knocks—Congress has been urged to appropriate for completion of the Baltimore-Washington parkway because it would be of great value in getting the population out of Washington in case of attack. The GOP has been trying to achieve this for years.

Want a Prize?—Building product literature which best serves architects and engineers will be selected for

(*Continued on page 15*)

FWD *Announces a*

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FOUR WHEEL DRIVE

Created for an Entirely New FWD work-range··In Answer to Demand

One of the most important developments in 40 years of FWD leadership! Here is a completely new Four Wheel Drive . . . designed to broaden the range of operation in the light-duty truck field. Now you can have a *true* Four Wheel Drive to completely fill the needs which *conversions* and conventional trucks have sought to answer. This new model — the LD — fulfills countless requests for an FWD in that broad field.

GET ALL THE FACTS on the LD! Ask for this folder, "The Story of the LD". See your FWD distributor or write FWD.

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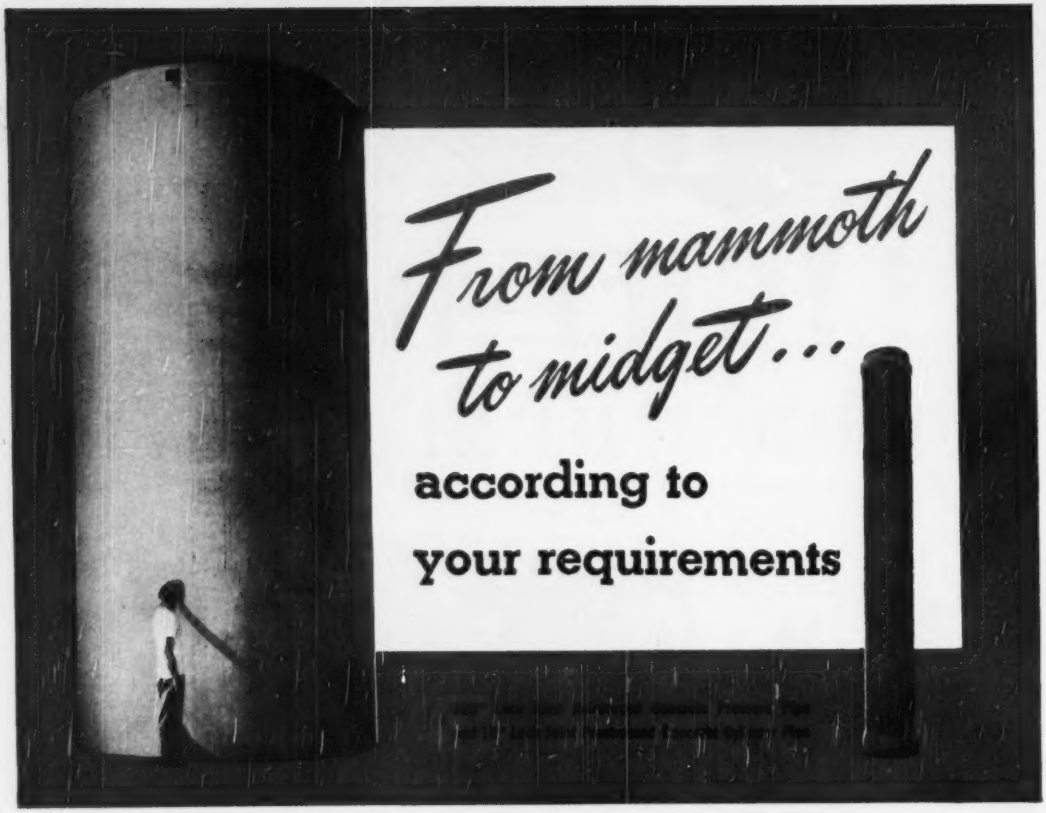

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In the last few years the Company has supplied not only hundreds of miles of large diameter pipe but also more than a million feet of 16" to 24" pipe for municipalities and industry. This has been made possible through the establishment of three permanent manufacturing plants. Lock Joint Concrete Pressure Pipe from 16" to 42" in diameter, produced at these plants, can be shipped economically to all parts of the country —for both major installations and minor extensions.

Our representative will be glad to discuss with you any water supply or transmission project which calls for pressure pipe 16" in diameter or larger. You will find that Lock Joint Concrete Pressure Pipe's superior characteristics of long life, continuous high flow and negligible upkeep will recommend it above all others for any permanent water supply installation.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

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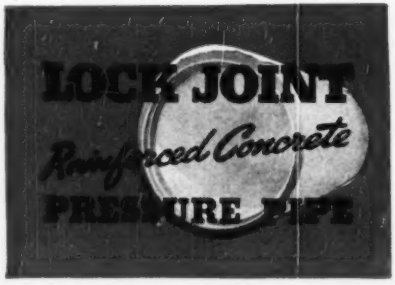

(Continued from page 12)
awards in three classes of the 1950 competition conducted by the Producers' Council, Inc., and the American Institute of Architects. Entry deadline: March 15. Details: Technical Director, The Producers' Council, 815 15th St. N.W., Washington 5, D. C.

Tastes Bad, Doesn't It?—New England is facing a water shortage in heavily pumped industrial areas, and there's already some encroachment of salt water in some coastal cities. That's the gloomy comment of C. C. Paulsen, chief hydraulic engineer for the U. S. Geological Survey, in testimony before Congress on "critical" water supply areas.

Coming! The Ash Age—Two Los Angeles materials dealers are exploiting deposits of volcanic ash—for concrete aggregate, building blocks and railroad ballast. The stuff is mined by bulldozers, and 11,000,000 tons of deposits have been mapped in the desert between Mojave and Lone Pine, north of Los Angeles.

Smog Jog—A small coffee roasting concern in Los Angeles is the first to have its operating permit revoked for violation of the smog control laws. Several other firms have been cited.

THE COVER

Looking like a king-size cupcake mold, caissons for the Virginia Highway Department's $9,000,000 Yorktown bridge across the York River are being made ready for sinking early in April.

The bridge project will be the state's most costly, involving a 3,750 ft structure with double swing spans (ENR Sept. 8, 1949, p-8) connecting Yorktown and Gloucester Point. Already completed is a 700-ft earthfill for one approach.

The caissons will become permanent forms around which and on which the river piers will be built. Engineers for the Massman Construction Co. and the Kansas City Bridge Co., who jointly hold a $4,690,000 contract for the substructure, expect to float the caissons through Hampton Roads into Chesapeake Bay and up the York River to the construction site for sinking. The caissons will measure 52x66 ft, and will be 110 ft in height. Four other caissons, measuring 42x66 ft, will be sunk beneath the river bed to depths ranging from 50 to 60 ft. The caissons are being built in the yards of the Newport News Shipbuilding Co.

Though not the longest bridge in Virginia, the new structure will be the largest from the standpoint of cost and the quantity of materials used in its construction.

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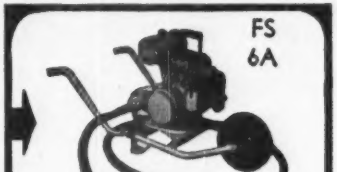
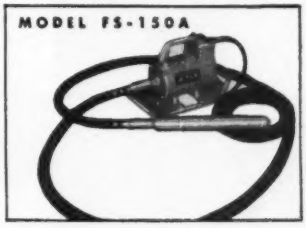
Model FS-6A is the finest of the engine-driven, flexible-shaft type vibrators. Ample power (4 HP). Available with 3 heads for thick or thin sections. Shafting furnished in 7' to 14' lengths up to 28'. Grinding and other attachments. An excellent performer as proven on thousands of jobs.



FLEXIBLE-SHAFT, ELECTRIC VIBRATOR



2½ HP motor. Plenty of power to handle the stiffest mixes with the maximum length of shaft (28'). Operates from light socket, 115 volt, single phase AC or DC. 8,000 to 10,000 VPM. Available with 3 vibrator heads and any length of shaft up to 28'; attachments for quick conversion to wet or dry concrete rubbing. Highly convenient, weighs only 50 lbs.

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THE CONSTRUCTION WEEK

WHO MOVES WHEN?—The matter of whether the nation's industrial plants could—or should—be moved and scattered (to provide less target for possible enemies) gets more confused. Checking around in Washington, two points stand out: (1) Officially, the Department of Defense has declared itself against moving plants inland; (2) most unofficially, the Air Force and Navy planners seem to be trying to stimulate manufacturers to go inland, by means including assignment of contracts to be fulfilled inland. Chance-Vought Aircraft DID leave Hartford, Conn., for Texas. Boeing DID agree to build its Stratojet bombers at Wichita (a move which satisfied Boeing at the time because its Seattle facilities were full) and DIDN'T get Air Force ok to move the job back to Seattle when work began to taper off there. Watson Laboratories, a major Air Force electronic control center, HAS been told to move from Red Bank, N. J., to Rome, N. Y. And there ARE well-financed pressure groups, some trying to move military production facilities inland and some to keep them where they are. All these things certainly smell like smoke, even though the responsible officials deny there's any fire. Actually, short of a military crisis a good deal more serious than exists now, the whole dispute will continue to be pretty political. The populous coastal Congressional districts can muster enough votes on military appropriations bills so that inlanders can't stampede the services to a flat inland dispersal policy. So builders shouldn't figure on any plant-building bonanza.

WANTED: BETTER DELIVERIES—Contractors have three principal desires about ready-mixed concrete: They want better delivery schedules, better uniformity of quality, reduced delivery prices. Of 307 contractors who answered a recent Portland Cement Association questionnaire, 114 complained of irregular deliveries; 29 said the concrete isn't uniform, load to load; 17 thought prices too high; 44 had no complaints. PCA sent out 360 questionnaires to ready-mix producers, rather surprisingly found corroboration. Of 207 producers who replied, 97 gave non-adherence to schedules as their most frequently received complaint; 43 heard most about high prices; 24 got most complaints about uniformity.

H-BOMB CONSTRUCTION SMALL—Construction work now in prospect for the hydrogen bomb program amounts to only a fraction of that already built for the A-bomb. Although the Atomic Energy Commission can't make any comment on cost of H-bomb facilities, good sources in the capitol indicate that new structures and equipment won't cost more than $200 million. Total cost of all installations for the A-bomb (including community facilities) runs about $2 billion.

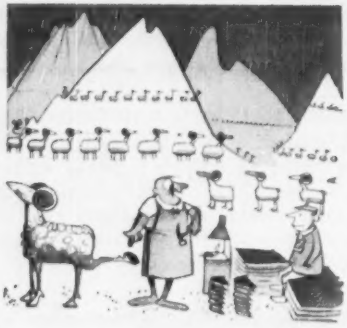
DIESEL-ELECTRIC EARTHMOVING?—A western contractor and an equipment manufacturer are trying to develop a heavy carrying scraper with diesel-electric drive. The contractor wants 75 of the machines, if they can be built—believes diesel-electric is the only real solution for power-application problems.

SLOWING STARTS—Government housing men figure that Mr. Truman's new housing program (ENR, Jan. 12, p. 17) won't get started in time to prevent a slide downward in starts. But they figure the slide will be moderate, not a really sharp drop below 1949's million-plus starts. The President's program is making slow progress—largely because of new financing proposed for co-ops—and passage isn't likely until early summer.

HOUSING RESEARCH—Richard U. Ratcliffe, director of HHFA research, killed off some fears of building materials manufacturers last week. He promoted Leonard G. Haeger to a new post as assistant director for program coordination, in the HHFA's research division; put A. C. Shire in Haeger's former spot with a new title—director of housing technology. Manufacturers have long feared that pressure from outside the housing agency might force Haeger out, and swing the research program toward propaganda purposes.

POLITICAL STEPPINGSTONE?—John W. Gibson, one of three assistant secretaries of labor, is a prospective appointee to the under-secretaryship of the Interior. A former president of the Michigan CIO, Gibson wants to become identified with something other than labor, as a buildup for launching himself in Michigan politics—possibly as a candidate for Senator Vandenberg's seat. If he is named, Mr. Truman will have escaped the hazard of offending backers of either C. Girard Davidson or William E. Warne—the two assistant Interior secretaries—both leading contenders.

JOB-FINDING TOUGHER—Jobs for new engineer graduates are harder to get now, and starting pay is about $25 a month less than a year ago, appointment service of a large west coast university reports. More plentiful supply of graduates is the reason. Indicative of the pay trend is a recent ruling by the State of California: Junior civil engineers are back to a starting pay of $281 a month.



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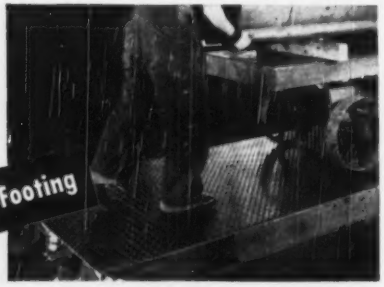

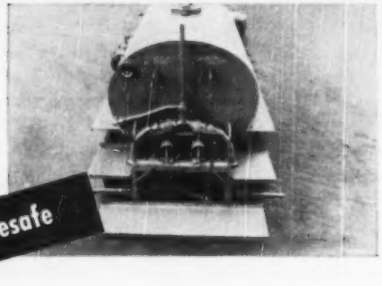

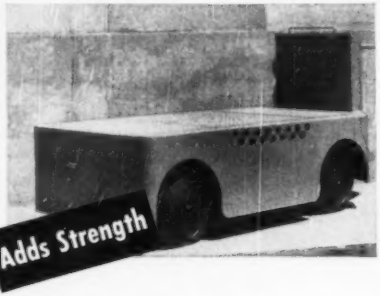

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CONSTRUCTION TRENDS

NEW RECORDS FOR MASS HOUSING

With a mild winter and with contracts coming in at an unusually high rate, the construction industry started 1950 at a record pace.

Homebuilders, particularly, carried through January in high gear. They were finishing off a backlog of work started in the fall months and were rushing to satisfy a market still strong.

But can they maintain the pace through the year?

A key part of that question involves the federal government's plans. Last year federal aid made an important contribution to the record of more than one million homes started. The outlook for rental-type housing—apartments and other mass housing projects—in particular is enmeshed with federal plans.

Outstanding in last year's picture was the boom in rental housing. In the first eight months of the year, the number of multi-family units (for four or more families) started ran 28% above the year before. By year's end, ENGINEERING NEWS-RECORD's contract awards for mass housing had reached a total 37% ahead of 1948.

The rise in rental-type units, as the chart above shows, paralleled the gain in the number of rental units financed under Section 608 of the National Housing Act. Designed to stimulate rental building in the postwar housing emergency, Section 608 was renewed by Congress last year in time for 111,000 starts.

This was perhaps the most dramatic result of the federal programs. But the federal plan of insurance and guarantees aided financing of an important share of all homes. In fact, about one-half of the homes under construction at year's end were financed with insurance or guarantees of the Federal Housing Administration or the Veterans Administration.

In addition, the Federal National Mortgage Association is well on its way to buying almost $1 billion worth of mortgages during fiscal year which will end in June. A subsidiary of the Reconstruction Finance Corporation, FNMA creates a secondary mortgage market by buying from private lenders, thus increasing their capacity to make new mortgages.

As it looks now, the program for rental housing will continue at a high level. The latest figures show that builders had plans for starting—but had not yet started—about 80,000 units under Section 608. This program is scheduled to expire in March, but Congress is expected to liberalize other sections of the National Housing Act to encourage rental building.

In addition, the Public Housing Administration hopes to see some 60,000 starts in its subsidized program for low income families. In any case, the program will boost mass housing projects well above their level of last year.

Private building of single-family homes for sale is still a question mark. It is still early to forecast the trend with precision. The FHA and VA guarantee programs will be maintained—continuing to aid in the financing of up to 50% of new homes.

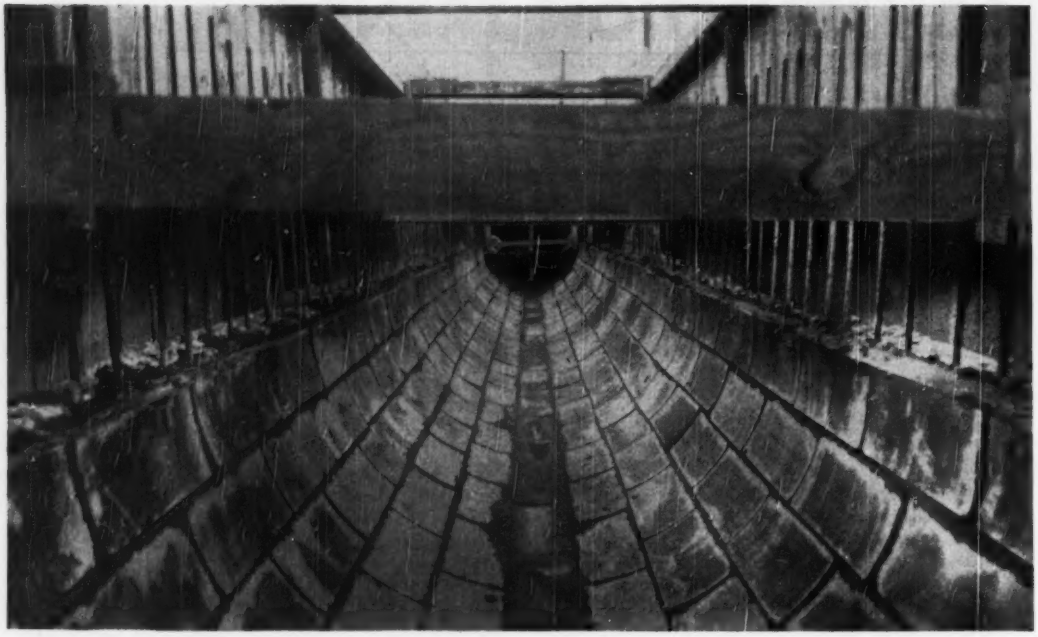
The market is still strong. At the turn of the year, the number of new homes awaiting buyers was probably less than it was at the start of 1949. Apparently there was little increase in the number of vacant homes during 1949.

In addition, the cost and financing pictures are favorable. During 1949, by estimates of the federal agencies, costs of homebuilding came down an average of 10% on homes across the country. Builders also produced more houses in the lower-price brackets and cut their own margins. The result was to bring down the average price at which homes were sold about 15%. This was enough to keep home buying brisk well into the winter. And it lessens the possibility that 1950 will see the market slow up as potential buyers wait for prices to come down again.

In both rental-building and single-family building, however, there are reports that the demand for luxury units is being met in many cities. To keep volume up this year, builders will probably have to build more lower-cost units and also bring prices down. Increasing efficiency can bring them down by 5 percent or so.

Generally, the mortgage money market has been easing during the past year. Congress is expected to extend FNMA's authority to buy mortgages—and that is counted on to keep veterans' home building at a high level through the year. With incomes and savings still at a high level, and expected to hold up, the prospect is that the supply of funds for mortgages will be ample to finance housing volume.

ENR will come back to the housing outlook again on the Trends page. But—as it looks now—1950 will be a very good year. With 60,000 new public units, 1950's total starts may well be close to the record levels of the last two years. And engineered mass housing seems well on its way to new records.



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A High-Level Start

THERE WILL BE no resting on the oars in 1950 for anyone in the construction business. That was made plain last month when the ENGINEERING NEWS-RECORD Construction Cost Index hit 484.85, a new all-time high. Nor can the materials and labor increases so reflected be safely passed on to the buyer of construction. He had a taste of lower costs in 1949, and he liked it. Result: Engineers must squeeze more dollars out of designs; contractors' bags of tricks must produce lower bids, new cost-saving methods. The road through 1950 is fixed. It's uphill all the way.

Salute to Success

THE HAZARDOUS NATURE of the contracting business is nowhere better illustrated than by a list of companies in continuous existence for over half a century. The brevity of such a list gives it an immediate mark of exclusiveness. But it should also serve to command the attention of all of the 6,000 or so contractors in business today who are still working on their first fifty years. What are the requirements for long life in the construction business?

A remarkably good answer can be found in the history of one of the most illustrious and oldest of American contracting firms—Winston Bros. Company of Minneapolis—which this year celebrates its 75th anniversary. In a book that it has just published commemorating this notable birthday, the accomplishments of the company in railroads, highways, bridges, industrial buildings, dams, tunnels, power plants, waterworks, irrigation, waterways and mining make a spectacular display. Here is "heavy construction" in full panoply. Here, in large part, is what "Building a Greater America"—the title we gave our own 75th anniversary issue last year—means. But over and above that, Winston's record reveals the fundamentals for success in the construction business.

A stand-out for first place is integrity—the will to do a job according to promise, come what may; the constant attempt to exceed promise. Then there is skill, built up slowly as job follows job, and as new men bring new skills and new experience to the company. And there is courage to try new things, to discard old, to subject skills acquired on one type of work to the test of application on another type.

As companies grow older, year after year following these tenets of integrity, skill and courage, they accumulate another powerful ingredient for success—pride of ancestry. The Winston company has this powerful motive force in the example of the three founding brothers—Philip, William and Fendall—who in the 1870's tackled the 2,000-mile wilderness between Minneapolis and the Pacific and left it streaked with rail lines, bridges and tunnels; then guided the company into other pioneer undertakings that the needs of a growing country demanded. They established a heritage of accomplishment that cannot fail to influence and inspire any present-day employee of the company.

Contractors who are still working on their first half century or who may just be going into business would do well to ponder these ingredients of success, highlighted by Winston Bros.' 75th anniversary. They will find them repeated in all of the other companies that have outlasted the vicissitudes of fifty years or more. They will be better and more successful contractors for consciously making integrity, skill, courage and a developing heritage a part of their everyday living and planning. And they will add their names to the list of companies that reflect honor to themselves and to a business calling that is unsurpassed in usefulness to the nation, but which needs more of the stability born of long experience.

A Road Tax Test

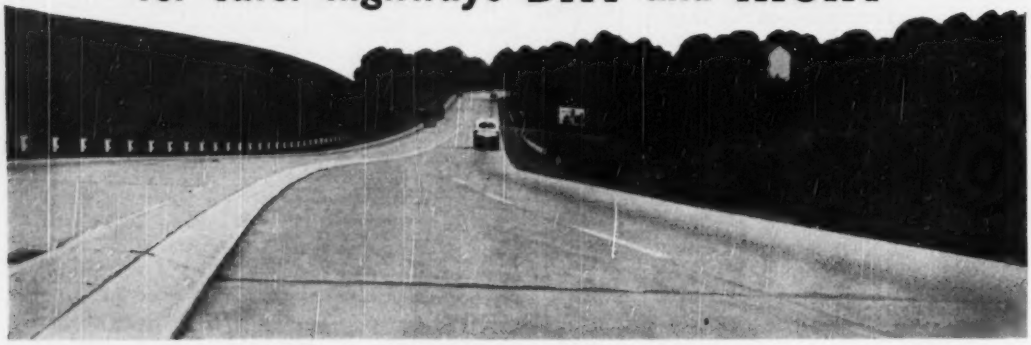
A TEST OF THE EFFECTIVENESS of local good roads associations in providing more state funds for highway work is in the making in New York. Under the leadership of Charles H. Sells, former head of the state's department of public works, the New York State Good Roads Association is launching a drive for a constitutional amendment to require that a substantial part of the income from taxes on motor vehicles and gasoline be used for roads. For many years, New York has diverted much of that money to other purposes. This year, the Governor's budget proposes to divert it all, a bond issue being recommended for highway financing. The Good Roads Association is also in favor of a bond issue, but only as an emergency measure while the State's taxing program is being revised to eliminate diversion of highway revenues.

For about a year, the Good Roads Association has been "working at the grass roots," getting strong local groups organized in important centers throughout the state. It would appear to be ready for a good fight, and the Governor seems to have provided it with just the type of issue it needed. We wish the association success in its drive to get a bad situation corrected.

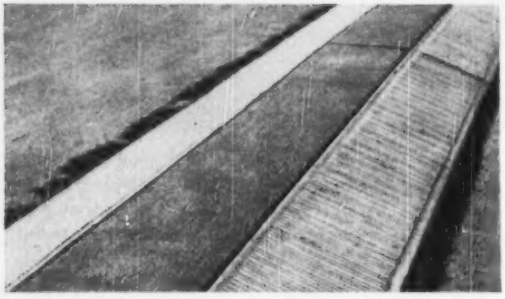
But regardless of the success or failure of this particular undertaking, the plan of attack is commendable and applicable to any state desiring to put road construction and maintenance on a sounder base. Highways, primarily, are a local facility. It is the local groups that can be most influential in having their gas tax and motor vehicle fees used for roads. Educating them and enlisting their support, as is being tried in New York, is good for good roads.

Atlas White Reflecting Curb

for safer highways **DAY** *and* **NIGHT**



Route 19, Washington County, Pa. White concrete reflecting median divisors made with Atlas White Duraplastic. Designed by Pennsylvania Department of Highways; contractor: Adam Eidemiller, Greensburg, Pa.



DURING THE DAY, contrast of Atlas White Reflecting Curb and gray concrete makes center line of this 4-lane express highway clearly visible.

AT NIGHT the corrugated faces of Atlas White Reflecting Curb catch headlight beams and reflect them back to the driver, giving a bright-white, glare-free outline of the road ahead.

VISIBILITY is an important key to highway safety. The clearer a driver can see and size the road ahead, the safer he is from going off the road or over into opposite-bound traffic lanes. To provide such increased visibility on today's crowded highways, Atlas White Concrete Reflecting Curb was designed.

Night or day, rain or shine, its whiteness guides drivers safely. During the day, Atlas White Reflecting Curb is a ribbed ribbon of white, plainly in contrast to smooth pavement gray. At night it is even brighter. For the saw-tooth faces of the curb's corrugations catch headlight rays and reflect them back to the driver . . . clearly outlining the highway ahead. And on rainy nights, when visibility is poorest, Atlas White Reflecting Curb becomes even more mirror-like.

Day or night, fair weather or foul, the highway equipped with Atlas White Concrete Reflecting Curb helps drivers steer clear of accident. For further information, write Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Bldg., N. Y. 17, N. Y.

AT NO EXTRA COST—for reflecting curbs, traffic markers and other white concrete uses, all the advantages of *air-entraining* portland cement—increased plasticity, easy placement; higher resistance to effects of freezing-thawing weather and scaling action of de-icing salts; greater durability—are now available. Ask about

ATLAS WHITE DURAPLASTIC* CEMENT

**"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.*

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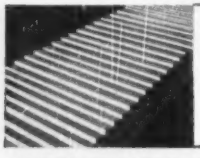


ATLAS WHITE CEMENT

For White Concrete Reflecting Curb

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

ENGINEERING NEWS-RECORD

FEBRUARY 16, 1950 VOL. 144 NO. 7

First federal planning loan approvals granted by GSA

Resumption of program focuses attention on public works project reserve — Study of project plans shows deficiency in size and lack of balance among programs

Approval last week of the first federal loans for advance planning of state and local projects — under the program reinstated by Congress four months ago — focused attention again on the unbalanced status of the public works reserve. Just a year ago, the business recession of 1949 brought the subject sharply to the fore, leading to passage of last October's law (ENR Sept. 29, 1949, p. 28).

Current inventory appears on p. 24.

• **Not what it should be** — As a little study of that listing will show, the nation's stockpile of blueprinted public works projects is deficient in size and unbalanced in detail. The objective of a reservoir of plans, as both construction leaders and legislators see it, is to speed the award of public works contracts in event of a slump. The present reserve is patently inadequate.

Improvement should result from application of last fall's law. The act that revived the advance planning program was signed Oct. 13. Purely an authorization measure, it proposed a two-year program that could be implemented with up to $100 million for federal loans to finance plan preparation by states and communities of local public works projects. Before leaving Washington, Congress voted $8,000,000 in cash and $17,000,000 in contract authority to get the work started.

• **GSA runs it** — Administration of the program rests with the Community Facilities Service of the new General Services Administration, that last year supplanted the Federal Works Agency. Under another name — Bureau of Community Facilities — the same administrative unit had operated the former advance planning program, set up by Congress in October, 1944, and allowed to expire June 30, 1947. At that time, legislators could see no need for a public works reserve.

Under the original program, FWA put out $52 million in loans to plan 6,800 projects having an estimated construction cost of $2.3 billion. Plans for 6,000 have been completed. Since June 30, 1947, more than 1,700 of the completely planned projects have gone under construction. Estimated construction cost of the fully planned works remaining in the stockpile at the end of 1949 was more than $1.3 billion.

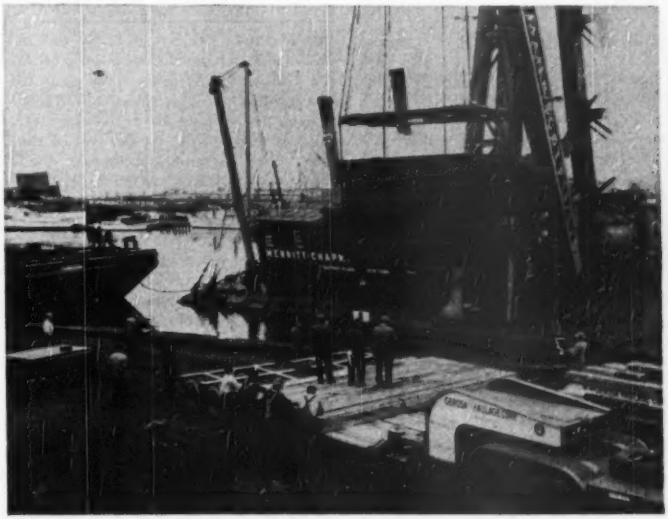
• **Old projects ready** — When the former program expired, FWA had to defer nearly 2,300 applications. Some of these proposed projects were still looking for planning funds when the new program came in, and a few are expected to file applications. The Community Facilities Service was ready to reactivate its machinery as soon as Congress furnished the money. Last week's loan approvals were the first concrete results of the renewed activity.

Those loan approvals assured a total of $395,000 for the planning of 24 projects in eleven states. Estimated construction cost of the 24 projects exceeds $12,000,000. The list included 18 sewage treatment plants and collecting systems. Three projects in that group are estimated to cost more than $1,000,000. All are due when work starts.

• **Plenty of applicants** — Since opening the doors for the new program, the Community Facilities Service has received applications for planning loans to 245 projects having an estimated total cost of $215 million. Because ap-

IF ENR'S LATE

Mail schedules have been disrupted by the cancelation of trains resulting from the coal strike. As a consequence, if this issue of Engineering News-Record is late in reaching you, we hope you'll understand our problem. It's one we regret, and one beyond our control.



DOUBLE TRAILER JOB—Two 80-ton trailer trucks were needed to transport this 50,000-kva transformer for New York City's Consolidated Edison Co. Stripped for shipping, transformer weighs 140 tons; completely assembled, 230 tons. Lighter derrick "Monarch" lifted transformer from barge, which then was removed so derrick could be warped to dock and transformer lowered.

plications already received for loans exceed in some cases the allocations to states provided by the act – particularly for planning sewage works in Ohio – Administrator Jess Larson of GSA has increased the apportionments to four states and Alaska.

GSA and the Community Facilities Service expect to approve loans at a rate of $5,000,000 monthly. That rate will exhaust the $25,000,000 of cash and contract authority in five months.

• **Rules are changed** – One of the criticisms made in Congress regarding the former program was that some consulting engineers would persuade communities to borrow planning money to pay the consultants for plans that would never be used. The borrower did not have to repay the loan unless the project was put under construction. Under the new law, if a project is not started in three years, the borrower has to prove good faith and give a sound reason for delaying the work; otherwise the loan is due at once.

ADVANCE WORKS PLANS

	Cost ($000,000)
FEDERAL PROJECTS	
Corps of Engineers	$1,000
Veterans Hospitals	239
Atomic Energy Commission	195
Tennessee Valley Auth.	95
Agriculture Dept.:	
Upstream Flood Control	56
Forest Service	35
Research Facilities	25
Miscellaneous	50
FEDERAL-AID PROJECTS	
Highways and Bridges	236
Hospitals	248
Airports	15
STATE & LOCAL PROJECTS	
Highways and Bridges	120
Sewer and Water	641
Schools	262
Hospitals	41
Other Public Buildings	110
Recreational	39
Miscellaneous	89

A reservoir of public works plans, of course, must be flowing and not stagnant. In such a system, new projects would be put into the reserve as others are taken out. Plans too long in storage become obsolete. In total, students of the problem say, the reserve should be at a minimum 25 percent greater than a normal year's public works volume.

Even more important, they point out, there must be a proper balance among the various classes of construction in the reserve stockpile if it is to function effectively in combatting depressed employment among construction workers. For example, in a depression, the building trades craftsmen in the cities and towns are hit first and hardest. Therefore, the building construction components should be proportionately large.

On this basis, the present reserve of public works projects is badly out of balance. River development projects of the Corps of Engineers come near to the minimum requirement, but Reclamation also should have $800 or $900 million ready to go. At the end of the year, the Reclamation Bureau had plans well along for $330 million of new projects – but none were ready.

• **More building plans needed** – Building projects listed in the table total only $900 million. There should be at least $2.5 billion in this group. Present activity by the Public Buildings Service in acquiring sites and preparing plans for 575 federal buildings throughout the country will add less than $400 million. In public buildings, the big share must be state and local.

Similar observations apply to other parts of the table. Airports might be $200 million or more, and highways $750 million. These categories undoubtedly are higher for the entire country than the rigidly limited figures in the table show, especially if the large volume of plans that are almost up to the final stage is considered.

Joseph W. Ellms dies, sanitation leader

Joseph W. Ellms, 82, who retired Dec. 31 as Cleveland's commissioner of sewage disposal, died Feb. 7.

A nationally recognized authority on water treatment and sewage disposal, Ellms was a native of Ayer, Mass., and was graduated in civil engineering from Massachusetts Institute of Technology in 1893. He served with the Massachusetts Board of Health, the Louisville Water Co., the Brooklyn (N.Y.) Board of health, and was superintendent of filtration for the city of Cincinnati, before joining the Cleveland water department in 1918.

Author of the book "Water Purification" (McGraw-Hill), a standard work for sanitary engineers, Ellms was responsible for many discoveries and inventions that are widely used today.

Included among these was hydraulic jump mixing flume, a device for mechanical, rapid mixing of chemical coagulant with water to be treated.

He was chairman of the committee on standard methods of water analysis of the American Public Health Association (1905) and served as consultant on design and construction of many sewage and water plants, including those at Dayton, Milwaukee, St. Paul, Sacramento, Toledo, and of course, Cleveland.

Ellms will be succeeded as commissioner by G. E. Flower, formerly superintendent of Cleveland's Southerly sewage treatment plant.

Congress on Large Dams to meet in India in 1951

Preliminary details of Fourth International Congress on Large Dams have just been received. The conference will meet in New Delhi, India, Jan. 10-15, 1951, in connection with the sectional meeting of the World Power Conference. Technical sessions are scheduled for Jan. 13-15. Following this meeting there will be a 15-day study tour of important dams, irrigation and power projects. The tour will end at Bangalore on Feb. 1, where the closing session of the congress will be held.

The International Association of Hydraulic Structure Research will meet at Bombay Jan. 3-5, a week in advance of the main meetings, and it will be followed by trips to research stations.

Subjects to be considered are: (1) methods for determining the maximum discharge that may be expected at a dam and the selection and design of spillways, both temporary and permanent; (2) design and construction of earth and rock-fill dams; (3) sedimentation of reservoirs; (4) effect on the watertightness of concrete of (a) content and nature of the cement, (b) grading of aggregates (c) cracks and absence of cracks, (d) use of pozzolanic and blast-furnace slag.

Papers must be in the hands of the central committee in Paris by April 1, 1950, in English or French, with a 400-word synopsis in both languages. Papers from the U. S. should be sent through Gail A. Hathaway, chairman of the U. S. Committee on Large Dams, 4316 Van Buren St., Hyattsville, Md.

U. S. citizens planning to attend should file a preliminary application through Mr. Hathaway by April, 1950. The registration fee for members and their ladies will be Rs. 150 (about $33). The study tour will cost about $170 for each participant.

Lightweight materials in New York building

City gets first skyscraper built with cellular light-gage steel floor decking and lightweight aggregates

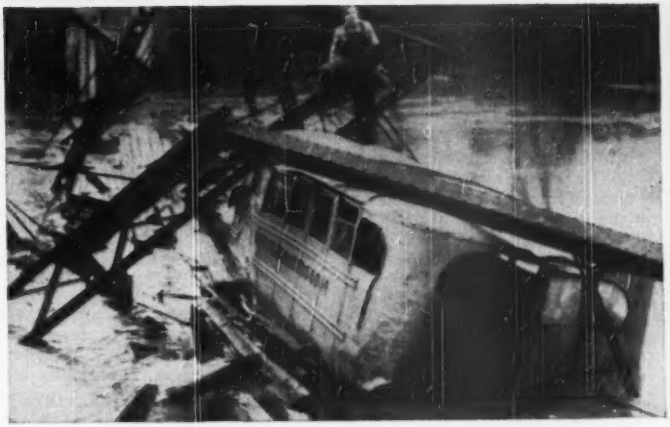
Cellular light-gage steel floors and plaster and concrete made with lightweight aggregates will make a great reduction in the dead weight of the 27-story Massachusetts Mutual Life Insurance Co. office building now under construction in New York City. This is the first time such use has been made of light-gage steel there.

Similar construction has been employed successfully in other cities recently. On the 30-story John Hancock office building in Boston, for example, the weight of structural steel alone was cut 2,000 tons by substituting vermiculite for sand and using the hollow steel decking.

Carson & Lundin, architects for the new building, also point to other advantages of the flooring, such as savings in construction time, elimination of plank working floors by early installation of the steel decking, and lower maintenance costs, particularly in relocating or extending electric wiring.

The building is being erected at 600 Fifth Ave. in midtown Manhattan, adjoining Rockefeller Center at 48th St. Excavation has been completed and foundations nearly so. Erection of structural steel is scheduled to be started next month.

Turner Construction Co. is the general contractor. Edwards & Hjorth are the consulting structural engineers.



OUR OUTMODED BRIDGES—Two more flimsy relics of the lightweight-vehicle days carried out their threats to life and property recently when these two bridges gave up. One (above) was near Heflin, Ala., the other was in Little Falls, N. J. Of 22 students riding in the school bus (above) six received minor injuries. The New Jersey collapse injured two. (Above, Acme Photo. Below, Wide World Photo)

Mississippi Valley group fights river authorities

Opposition to further river-valley-type development authorities seemed to be the keynote last week, as members of the Mississippi Valley Association closed a two-day meeting in St. Louis.

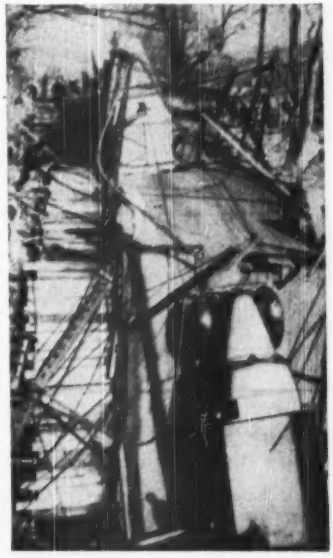
Tenor of most of the principal addresses — and of the 900-odd delegates who heard them — was opposition to valley-type authorities as "superstates," and strong support for the Engineers and Reclamation Bureau.

• **Fear centralized control** — Indicative was a report from an association committee on water resources, which warned against the authorities on the ground that they "tend to transcend the state and local governments."

"We strongly oppose expansion of regional valley authority plans for valley control," the committee said, "and call on Congress to pass necessary legislation for continuing valley control work by the Engineers and the Bureau."

The group further heard an address by W. G. Sloan — co-author of the Pick-Sloan plan for the Missouri Basin — who strongly defended the inter-agency committee he heads (including the Corps of Engineers and the Bureau and related agencies) as a working organization that has settled numerous disputes over flood control and power distribution, and is working well toward development of the valley.

The group also heard an address by Senator Robert S. Kerr of Oklahoma, who urged the development of the Arkansas-White-Red River valleys. "It's time we moved the Engineers and soil conservation service to little waters."



Okay Iowa flood project

Iowa's Natural Resources Council has reported favorably on an $800,000 flood control project and is studying three that are larger. The approved project calls for a new channel for the Upper Iowa River to the Mississippi near New Albin. Pending projects are a diversion of Indian Creek, Council Bluffs, at $4,000,000; a Des Moines River dam and reservoir at Howell, $48,000,000; and a Chariton River dam at Rathburn, $15,000,000. Federal financing would be required for these.

PERSPECTIVE

New York Is Not Alone

Metropolitan New York City—as befits the nation's largest concentration of population—is now going through the nation's best publicized (and long due) period of strain over water shortages.

But, if the city's water headache is the biggest, it's not the only one now throbbing in the United States.

Last week, the Geological Survey of the U.S. Department of Interior submitted a report on some 50 areas in the United States "where the supply of suitable water for household, industrial or agricultural use could become serious or already is critical."

The situation is far from hopeless, and there are remedies at hand.

The main remedy, said the Survey:

With adequate hydrologic investigation, critical shortages in most communities can be met intelligently, or avoided, by making an appropriate analysis of the quantity and quality of water needed, and by designing systems on the basis of reliable information on the sources of water to be developed."

The means are at hand, the Geological Survey said, in its own records and experience. "The Geological Survey's methods and techniques for determining the dependable yield of present or prospective sources of water are available, and, where carefully carried out, can afford confidence to a community and its industry that it has an adequate source of water on which to base its future.

"Present water shortages are due almost exclusively to the failure in the past to make adequate hydrologic studies as a basis for planning."

Detailing its report on areas where shortages are now apparent, (according to a survey developed under the direction of Carl G. Paulsen, chief hydraulic engineer) the survey listed:

Eastern Area—The water problems here are largely those created by increasing industrial and municipal usage. Specifically, the areas investigated are:

New England; Baltimore and Philadelphia; Long Island; New York City and metropolitan New Jersey. Heavy pumpage in the Baltimore, Philadelphia and Long Island areas is of particular concern.

Southeast—Here again, Survey engineers said water supply deficiencies are largely due to pumping of ground water in rapidly expanding industrial areas. Surface water supplies have been generally adequate but drought can cause shortages of water for hydro power and municipal use. Specifically, areas investigated include Memphis; Montgomery and Selma, Alabama; Jacksonville and Sarasota areas near Tampa, in Florida.

Midwest—In this area, the survey suggests studies of quantities and qualities of water used and methods of increasing efficiency of the use of water and of new sources of supply. Checked were Chicago, Milwaukee and Minneapolis-St. Paul, Peoria, Indianapolis, Cincinnati and Louisville.

Southern States—Increasing use of water for irrigation, especially for rice, is causing considerable overdraft on available supplies in Texas, Oklahoma, Louisiana and Arkansas. The survey recommends new studies into new sources of water and future needs for water in this area.

The West—Irrigation here is the major use of water, but municipal and industrial uses have been increasing on the West Coast.

The Geological Survey comments that readily available surface water supplies have already been appropriated and have thus increased the use of groundwater.

In Arizona, for example, all surface water available is used and oversubscribed and a succession of dry years since 1941 has led to increased drafts on overdeveloped groundwater.

One remedy being suggested is some means of the estimated 20 to 25 million acre-feet per year that is wasted through surplus flood water in sudden flash floods.

ASCE committees attack refuse disposal problems

The American Society of Civil Engineers has now activated five task committees to study and report on the problem of refuse collection and disposal, according to Henry W. Taylor, chairman of the Committee on Refuse Collection and Disposal.

The task committees, and their chairmen, are:

Task Committee on Collection: Norman W. Nester, University of Illinois, Urbana, Ill. This group will devote its attention to a system of procedure to suggest solutions for individual collection problems for a wide range of community types.

Dumping and Landfill: Warren A. Schneider, Los Angeles. This committee will draw distinctions between dumping and landfill, general operating methods and costs, procedures and ways and means of improving the disposal methods.

Hog Feeding, Health and Financial: Sol Pincus, New York. This committee, working with the U.S. Public Health Service and the Conference of State Sanitary Engineers, will check on the prevalence of feeding municipal garbage to hogs and will also devote itself to public health and financial aspects of refuse collection and disposal problems.

Incineration: Henry W. Taylor, New York. This committee will indicate to what extent incineration has been replaced by some other method of disposal; will attempt to present the critical factors in design resulting from a change in the component parts of refuse, methods of handling material and will emphasize the fact that incineration is not a total disposal method.

Reduction: Newell L. Nussbaumer, Buffalo, N. Y. This committee is preparing data with reference to the surviving reduction plants in the United States.

Other Methods of Disposal: Samuel M. Clarke, Chicago.

WHO FLIPPED THE COIN?

A flip of a coin decided the award of a paving contract in San Jose, Calif. Two firms, A. J. Raisch Paving Co., and the Pisano Bros. General Contracting & Engineering Co., submitted identical low bids of $759.50 on the job.

Raisch won the toss.

New contractor-state dispute arises over North Carolina rural road plan

Road Builders' official asserts sound engineering being bypassed, says state will get only half value — Commission denies charge

North Carolina's road builders and its Highway Commission have started their feuding again.

Picking up after a recess in their dispute of last summer (ENR Aug. 25, 1949, p. 10), Warren J. Mann, executive secretary of the Carolina Road Builders' Association charged that the commission is spending the proceeds of its $200 million rural road bond issue so fast that "we can hardly be assured of much over $100 million worth of roads from the entire $200 million bond program."

• **Jordan scoffs at charge** — The commission's reaction came first from Chairman Henry Jordan, who said Mann's statement doesn't reflect the opinion of all contractors. But Jordan couldn't say immediately what part of the available bond funds ($50,000,000 worth have been sold) has been spent, nor how much of what has been spent has gone for contract, as opposed to force account, work. The original dispute revolved largely around contractors' fears that the commission would do much of the work itself, rather than by letting the work for construction by private contractors.

Triggering Mann's statement was a decision by the commission to sell a second block of bonds — $75,000,000 worth rather than $50,000,000 — as soon as possible.

• **Much too fast** — Mann said that in the referendum campaign on the bond issue last Spring, the commission proposed to sell the bonds in $50,000,000 blocks in 1950, 1952, 1954 and 1956. Instead, he declared, "we are spending $50,000,000 every six months or better," and he added:

"The contract system, which has proven by actual test within our own state to be the most economical and expedient means of constructing highways, is being largely bypassed by our highway commission. It has been so insistent upon rapid expenditure of the bond money that it has, in many cases, bypassed sound engineering and economic principles generally applicable to highway construction. Highway engineers in the state and the nation as a whole are viewing our program with great animosity, realizing that the important function of highway engineering, including engineering planning, cost analyses and other important functions of the highway engineer, are being ignored and the taxpayer is paying the difference."

• **Need the money** — Jordan said the charges aren't true, and added that "you can't set up a program until the funds are available." The $75,000,000 issue, he went on, should carry the program through 1950. And Jordan reiterated a statement he made several times last summer: "I think that certainly some of the contractors have all (the work) they can handle." He cited one contractor who bid low on seven projects and parts of another at a recent letting. Approval had to be deferred, Jordan said, because there was a question whether that builder could handle all the jobs at one time. As a result, Jordan declared, the next big letting, scheduled for February 28, will be conducted in two sections, on that day and March 2, so that contractors won't bid on too many jobs.

In his attack, Mann asserted:

"As of today, the highway commission has put under contract for improvement some 975 miles of secondary roads of the state at a cost of approximately $7,800,000. This amount, plus the $5,000,000 spent for the purchase of construction and maintenance equipment, makes a total of $12,800,000 expenditures from the first $50,000,000 block of bonds."

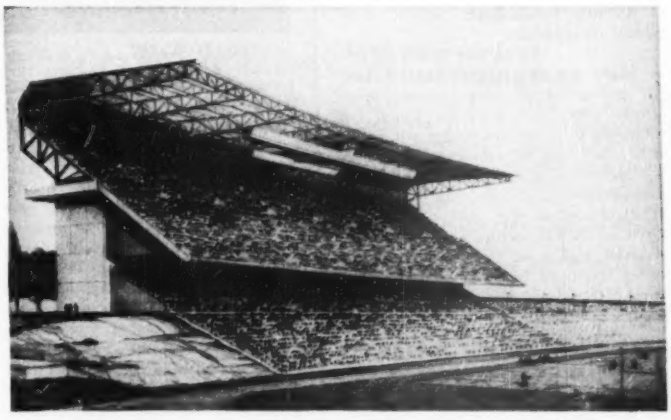
• **Jordan doesn't know** — These figures found no confirmation from Chairman Jordan. In declining to say how much had been spent — and for what — Jordan declared he'd "rather not break this thing down — it's so confusing." Jordan said the amounts were changing constantly as new projects were let and payments made. Also, he said, the bond act required that each county must receive a fixed percentage of the proceeds of each bond issue. Thus, he said, bonds must be sold faster than the work actually requires. "It's hard to explain this," Jordan added.

Chief Engineer W. H. Rogers, Jr., of the commission, said he thinks people have lost sight of the purpose of the rural roads — a response to part of Mann's allegations. And Rogers added:

"My information is that Mann's opinion does not reflect the opinion of all contractors."

• **AGC is missing** — (As this issue of ENGINEERING NEWS-RECORD went to press, the new attack had been made only by the Carolina Road Builders' Association. It had not been joined by the Carolinas Branch of the Associated General Contractors, which was a party, with the road builders, to last summer's dispute.)

It was reported that several contractors have advised the commission that the views in Mann's statement were not necessarily theirs. Jordan said one of these contractors is N. K. Dickerson, Jr., of Monroe, a member of the Road Builders' Association and president of the Carolinas Branch, Associated General Contractors.



HOME FOR THE HUSKIES—Here's an architect's drawing of a balcony addition to the University of Washington stadium at Seattle. Bids were called for last month, with its cost estimated a $1,500,000. The structural steel balcony will have a 145-ft cantilevered roof, covering 14,000 seats in 59 rows on two levels of concrete concourse. Access will be from two reinforced concrete circular ramps. George Wellington Stoddard & Associates is architect.

Second floating bridge Seattle need in 1955

Full capacity of present bridge will be used then, report asserts—Estimated cost of new structure is $8,500,000

Seattle will need a second floating bridge across Lake Washington in 1955, or perhaps earlier, State Highway Director W. A. Bugge has reported to the Washington Toll Bridge Authority.

By that time, the existing floating bridge will be used to capacity. Tolls on the second span would begin to amortize it between 1955 and 1960, Bugge estimates, in view of the rising traffic trend. A greater-than-expected traffic increase or lower construction costs could render the structure feasible even before 1955, he added. Tolls would be required even though the existing bridge is now free, after rapid amortization of its cost (ENR Aug. 11, 1949, p. 20).

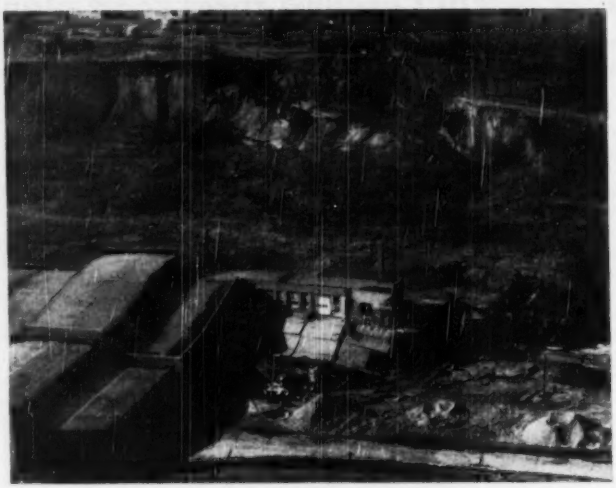
• **Seattle moves east** – Traffic on the present bridge has jumped 290 percent since 1940 in the face of a vehicle registration increase of only 53 percent. About 70 percent of the traffic has its origin and destination within a 10-mi radius of Lake Washington.

Most feasible route for the new bridge, Bugge reported, would be from Madison Park in Seattle to Evergreen Point on the east shore several miles north of the existing bridge. This route is somewhat longer than by the present 8,583-ft structure. Cost, at current prices, is estimated at $8,500,000 to $10,000,000. The existing bridge, completed in 1940, cost $9,859,018, of which $3,934,875 represented a PWA grant, the remainder the proceeds of a revenue bond issue, retired years ahead of schedule.

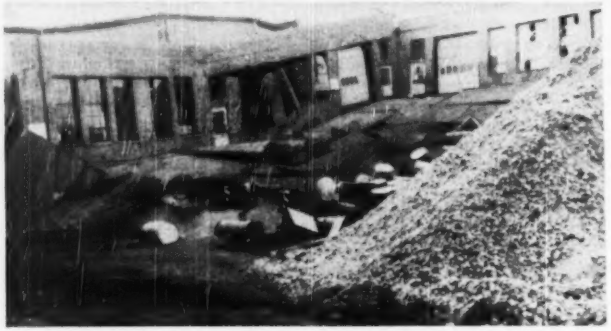
• **Might not stay free** – There's even an indication of how the authority might solve the dilemma posed by charging tolls on one bridge while another, not too far away, is free. Plans for the existing structure called for a tunnel through Beacon Hill to provide ready access to the bridge from the city's industrial section and the southwestern residential district. The tunnel never has been built. If it were, tolls presumably could be levied on the first bridge to finance the tunnel construction and equalize the attractiveness of the two structures.

Now that he's finished the floating bridge study, Bugge can get on with another for which he's been commissioned by the authority. That's an engineering study of the future of bridging Puget Sound west of Seattle. First phase of this study is scheduled to be completed about April 1.

And the road came tumbling down



NON-SUPPORT—County highway garages and highway too (rear), were destroyed at Brecksville, O., last week when a silty blue clay formation became saturated and shifted, causing upheaval.



$800,000 DAMAGE—Area between road and buildings sank, causing soup-like clay to boil up around structures. Building loss of about $400,000 will be matched by cost of road relocation.

Brecksville cave-in was caused, according to engineers, by extremely wet weather which saturated a clay formation underlying parts of the Cuyahoga River Valley. The clay worked upward under pressure of what had been 3 to 1 slope rising from garages to the road, 300 ft to the rear. When cave-in occurred along a 1,000-ft front, the clay boiled up around the garage, raising the side of the building nearest the road about 30 ft. The other side was raised about 15 ft and jammed against the larger building. The bulging extended 200 yds, up to the Cuyahoga, toppled a 90-ft stack across B&O railroad tracks and heaved rails as much as 6 ft. Movers were attempting to save the house.

NEAR MISS—Home was threatened when 500 ft of road was undermined. Porch dropped off later.

Urge earmarking of N.Y. road revenues

The New York Good Roads association said last week it would seek an amendment to the state's constitution that eventually would channel all state revenues from highways into highway construction and maintenance programs.

If approved, such an amendment would be similar to others adopted in many other states over the past several years.

Charles H. Sells, former state public works commissioner and now executive director of the good roads group, said diversion of such revenues to purely highway uses would finance a $175 million-a-year highway improvement program. Such a program, he said, is needed to meet the state's "billion dollar" deficit in highway, parkway and grade crossing elimination work.

The required constitutional amendment could not take effect until 1952, since approval is required of two successive legislatures and by the voters at a referendum.

Moles honor Hoover, Dougherty, Eisenhower

Former President Herbert C. Hoover, and Richard E. Dougherty, former president of the American Society of Civil Engineers, last week received the 1950 Moles awards, at the annual dinner of the organization in New York City.

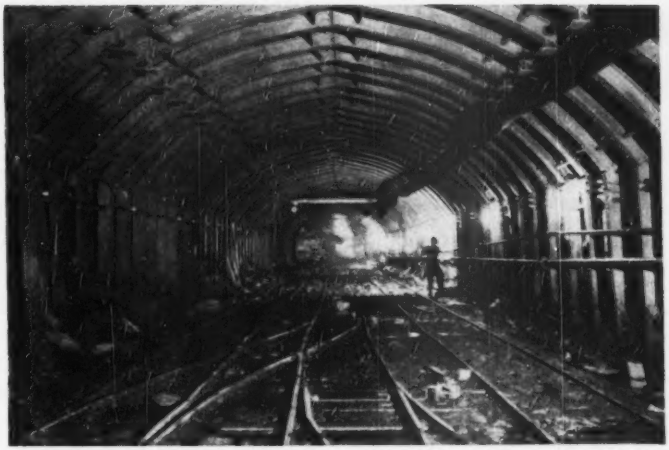
General Dwight D. Eisenhower, now president of Columbia University, was inducted as an honorary member of the organization – a group of the nation's leading heavy construction engineers and contractors.

The former President, in a brief address, told the assembled engineers and construction men that their biggest job today "is the elimination of the great waste" in U. S. civilization and government.

The awards were presented by Carlton S. Proctor of New York, president of The Moles, and by W. A. Durkin, president of Walsh Construction Co., New York. In introducing Mr. Hoover, Mr. Proctor asserted The Moles' hearty endorsement of the Hoover Commission report.

N.Y. to help planning

New York State proposes to assist communities in planning sewer systems and sewage treatment plants. A bill is before the legislature to offer funds up to two percent of construction costs for studies of such works, widely needed in New York cities and towns.



LET IT POUR—Philadelphia is building the Wingohocking storm sewer at a cost of $1,150,000 as the first part of its Logan-Olney storm water relief program. One of the largest such tunnels ever to be built in Philadelphia, the shaft eventually will be extended several blocks to Broad Street. Joseph Lombardi, Philadelphia, is general contractor.

Truman urges northeast water survey

Seeking means of aiding states in the northeastern sector of the country in their now desperate search for water sources, President Truman last week asked Congress to authorize a two-year survey of the area.

• **Power added bait** – The President took advantage of the occasion also to urge again that Congress approve the St. Lawrence Seaway project, as a part of general programs to aid the water-short area.

In a letter addressed to Vice President Alben W. Barkley, Mr. Truman strongly supported an amendment to the Rivers and Harbors-Flood Control authorization bill, introduced a day earlier by Sen. Theodore F. Green, of Rhode Island. Senator Green's amendment would authorize an overall study of land and water resources in New York State and New England, with a view to recommending an integrated development of these resources.

"New York and the New England States," the President said, "have real and serious problems of soil and forest conservation, and of controlling and using water to prevent floods, provide domestic and industrial water supplies, and furnish low-cost hydroelectric power." He singled out the St. Lawrence project as a "notable individual project which should proceed without delay," but commented that the project is an important part of any broad-scale development plans. "It should go ahead," Mr. Truman said, "without awaiting the outcome of the study.

• **Passamaquoddy's back** – The chief executive also pointed out that the power potential of Passamaquoddy, redevelopment of Niagara Falls power and other projects also will contribute to better water use and to the economic potential of the whole northeast area.

Sen. Henry C. Lodge, of Massachusetts, who introduced a resolution for a similar study a year ago, hailed the President's letter as evidence that administration leaders will now push through the plan.

Seek new airport for Washington D.C.

The Senate Interstate Commerce Committee approved legislation last week authorizing construction of a $14,000,000 airport to relieve air transport congestion at Washington, D. C.

Sponsored by Sen. Edwin G. Johnson, of Colorado, the measure would authorize the Civil Aeronautics Authority to construct and operate the new airport. No specific site, other than "at or near Washington" is included in the measure. An analysis presented by Sen. Johnson said that the traffic capacity of the Washington airport is already saturated and is expected to increase by 40 percent by 1955.

Officials who have discussed the proposal say the new airport, if built, probably will include a 10,000-ft runway to handle the largest types of new planes, and the surrounding buildings may include a hotel.

CONSTRUCTION BUSINESS

Construction and building cost indexes move within small range

ENGINEERING NEWS-RECORD Construction Cost Index for February is 484.85, up less than a tenth of a point from January, but to a new record high. Other indexes show:

• **ENR Building Cost Index** – Is 356.48 for February, up a quarter of a point, but still under the all time high of 357.07 in October, 1948.

A 10-cent increase per M in the 20-cities average price for lumber accounts for all the rise in the Construction Cost index and part of the rise in the Building Cost Index. The balance of the rise in the Building Cost index is due to an average increase of 0.2 cents an hour in the 20-cities skilled wages average.

• **E. H. Boeckh** – The cost of brick and concrete building increased very slightly from November to December, 1949, according to the index of E. H. Boeckh & Assoc., Inc.

In December the index for New York was at 455 (1913 = 100), up a point from November, 1949 but 3 percent below the record high of 470 set in March, 1949.

The national average was 388.3 in December, up a fraction from November and within 1 percent of the record high of 391 established in October-November, 1948 and March, 1949.

• **S. H. & G.** – Building costs increased 1 percent from December to January, 1950, according to the building cost index of Smith, Hinchman & Grylls, Inc. The January level is 214 percent of the 1926 average.

During midsummer, the index was at its 1950 low of 210 (1926 = 100). It was 211 in October and November and 212 in December, 1949.

• **Associated General Contractors** – The AGC Building cost index for January at 345 for the fourth consecutive month. For the past 18 months, the index has stayed within a three percent range. January a year ago, it was 341, it declined to 340 in April and May, 1949 and then eased up to its present level in October.

• **Fruin-Colnon** – The Fruin-Colnon building cost index dropped a point to 381 (1931 = 100) in January, 1950.

The index held steady at 382 from September through December, 1949. It established its 1950 low at 380 in July. The all-time high for building costs was the period October-December, 1948, at 391.

• **George A. Fuller** – Index of commercial building cost for January, 1950 at 373 (1913 = 100) is off a full point below October, 1949. This is 4.4 percent lower than the peak level of 390 established in January, 1949.

The index declined from 390 in January, 1949 to 385 in April, 378 in July and 374 in October.

• **Turner** – Building costs measured by Turner's cost index continued level at 407 in February for the ninth consecutive month. (1913 = 100)

Construction wages hold to small gains

Average common labor rates in 20 cities are unchanged at 1.485 an hour in February compared with the previous month as reported by ENGINEERING NEWS-RECORD. Skilled trades show a 0.08% increase to $2.466, due to an average increase of one cent an hour for structural ironworkers.

Compared with a year ago, common and skilled labor wage rates are each up 4.8%. Bricklayers have obtained the biggest raise—up 6.2% since February, 1949 to $2.721 an hour. Wages for structural ironworkers are up 4.1% to $2.436 and carpenters 2.5% to $2.242 from a year ago.

This stability in the construction labor market is also evident in the most recent reports of the Bureau of Labor Statistics.

Wage scales of union workers in the building trades advanced only 0.2% between October 1, 1949 and January 3, 1950, according to a survey of seven major crafts in 85 cities by BLS. This compares with a full 1% rise in the same period of 1948.

The average rates reported by BLS for 86 cities check closely with the 20-cities average reported monthly by ENGINEERING NEWS-RECORD. Common wage rates reported by these two sources are identical for January at $1.49 hourly. BLS reports $2.28 an hour for carpenters, in 86 cities, compared with $2.24 reported by ENR for 20 cities for bricklayers, BLS reported $2.76 and ENR $2.72.

The Bureau's estimate of the average hourly scale of all union workers in building construction was $2.21 on January 3, 1950—72% above June 1, 1939.

Plumbers, electricians and bricklayers obtained the greatest wage increases during the final quarter of 1949—all about a cent an hour and amounting to roughly 0.4% increase in their wage scales.

Carpenters' rates remained virtually unchanged. Common building laborers averaged 0.3% cents an hour increase; painters and plasterers got a half-cent raise.

Bad weather in Northwest driving lumber prices up

The most severe weather in a generation throughout the Pacific Northwest has driven up lumber prices an average of $2 to $5 a thousand on green grades, with a possibility that there will be shortages in some lines before spring.

The increase has already been felt in Detroit and St. Louis and is becoming noticeable elsewhere in the Midwest and East, where building is unseasonably high this winter.

In Detroit, Douglas fir 2x4s to 2x10s are up $4 to $5 per M. Fir 1x6s and 1x8s are steady. Pine 1x6s to 2x10s are down from $1 to $3.50.

In St. Louis, prices are generally higher, with yellow pine up from 50 cents to $2.75 per M. Douglas fir increases range from $1 for 2x6s to $7.25 for 3x12s No. 1 common.

In New York City, prices of southern pine 1x4s have skyrocketed $6-$8 a M in the past two weeks to a current price of $61. This size is used extensively in apartment house underflooring, now in strong demand.

But New York lumber prices in general are unsettled and rising. Pine 1x6s tend to follow 1x4 prices and many suppliers will not quote on 2x3s.

The unseasonably high demand and increased minimum wages at marginal southern mills are reasons given for these price rises.

Fir prices, too, are expected to go up unless conditions improve in the producing areas of the Northwest. New York is still selling No. 1 common fir 2x4s for $92.50-$97.50, the same rates that have prevailed since early January.

The lumber wholesalers in New York believe this price situation is temporary and will stabilize or reverse later in the spring.

Douglas fir production in the entire U. S. in the first four weeks of 1950 ran 4% below the same period a year ago, according to preliminary reports of 138 mills to the NLMA.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 85 went to press.)

Reservoir — Bids will be opened March 20 by the U. S. Engineers, Portland, Ore. for completing earth embankment, dam structure, concrete spillway structure, for Lookout Point Reservoir, Williamette River, Lane County, Ore. The estimated cost is $20,000,000.

Generating Plant, Transmission Lines — North West Electric Power Cooperative, Savannah, Mo. plans 40,000-kw. steam generating plant, near Missouri City and 257 miles of transmission lines, all in Missouri to cost about $18,393,000.

Apartments — Turner Construction Co., Chicago, Ill. has been awarded $17,600,000 contract to build Oakdale-Sheridan Apartment at Chicago, Ill. Philip D. Maher, Chicago, is architect.

Generating Plant, Transmission Lines — Western Electric Co-operative Co., Hollis, Okla. plans constructing 30,000-kw. steam generating plant near Anadarko and 877 miles of transmission lines, also substations in Caddo and Comanche Counties, Okla. at about $12,500,000.

Irrigation Works — Utah Construction Co., San Francisco, Calif., Sociedad Industrial de Ingenieria y Construcciones (Sideico) of Bogota and Olarte, Ospina, Aricas y Payan, Bogota, have been awarded a $4,081,000 contract to construct irrigation works in Coello River Valley, Tolima Department, for the Federal Government of Bogota, Colombia.

Airport — Civil Aeronautics Administration, Washington, D.C. plans an airport with 10,000-ft. runway at or near Washington, D.C. First unit is estimated at $14,000,000 and may include a hotel. No money appropriated to date.

Federal Buildings — Among the projects for which the General Services Administration will select sites at once is a barge office in New York City, N.Y. $6,300,000, court house and post office at Fayetteville, N.C. $2,145,000, federal office at Huntington, W. Va. $4,700,000 and post office and court house at Fort Dodge, Ia. $1,440,000. No appropriations have been made for these buildings.

Housing — G. B. Northrup, architect of Belmont, Mass. is preparing plans for $5,000,000 housing devolepment at Lexington, Mass. for William Butler, Arlington, Mass.

Roads and Bridges — Pennsylvania State Highway and Bridge Authority, Harrisburg, Pa. awarded contract for roads and bridges in Lawrence County to V. N. Holderman & Sons, Inc., Columbus, O. at $2,223,349. Also highway and bridges in Schuylkill County to J. Robert Bazley, Inc., Pottsville, Pa. $2,444,300.

Childrens Hospital — Arabia Temple Shrine, Houston, Tex. has extended date to receive bids to February 20 for the construction of Childrens Hospital to cost about $2,500,000. Alfred C. Finn, Houston is architect. Roy J. Cummings, Houston is engineer.

Ammonia Plant — Austin Company, Houston, Tex. has the contract for construction of ammonia plant at Freeport, Tex. for the Dow Chemical Company, Freeport, Tex. to cost about $4,500,000.

Intake Channel, Chief Joseph Dam — General Construction Co., Seattle, Wash., is the contractor for excavation of intake channel at Chief Joseph Dam at $2,265,000, by the U. S. Engineers, Seattle, Wash.

Apartments — Pembleton & Mims, Birmingham, Ala. architects will take bids February 28 for apartments to be constructed at Cincinnati, O. for Warner-Kanter Co., N. Birmingham, Ala. Cost will exceed $3,000,000.

Schools — Voters of Wake County, Raleigh, N. C. will vote March 21 on $4,250,000 bond issue to be used for school construction.

Residential Development, Shopping Center — Joseph Butera, Norristown, Pa. will construct residential development, including shopping center at Norristown, Pa. by separate contracts. Cost is about $2,750,000.

Gasoline Plant — Barnsdale Oil Co., Houston, Tex. is taking bids for construction of gasoline plant at Snyder, Tex. to cost $2,250,000.

Dock — T. C. Gorman (Nova Scotia) Ltd., Halifax, N. S. has been awarded contract for enlarging dock and terminal facilities at North Sydney, N. S. by the Department of Public Works, Ottawa, Ont. at $1,177,777.

Warehouse and Office Building — Campbell Construction Co., Detroit, Mich., has the contract for warehouse and office in Detroit to cost about $3,000,000 for the Lincoln-Mercury Division, Ford Motor Co., Detroit, Mich. Earle W. Shaffer, Detroit, is architect.

Oil Separating Processing Plant — Phillips Petroleum Co., Bartlesville, Okla. will construct oil separating and processing plant by own forces. Estimated cost is $3,750,000.

Club Building — Palm Valley Club, Palm Springs, Calif. plans club building, swimming pool at Palm Springs, Calif. at an estimated cost of $2,000,000. Heitschmidt & Matcham, Los Angles, are architects.

Office — Crown Life Insurance Co., Toronto, Ont. has just purchased site for Main Office building in Toronto, Ont. The cost of construction will be $3,000,000.

Plant — International Harvester Co., Kansas City, is receiving bids from selected bidders for plant buildings there to cost $6,000,000.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Feb. '50	484.85	233.07
Building Cost	Feb. '50	356.48	192.70
Volume	Jan. '50	407	179

Activity This Week

As reported to ENR
(in millions of dollars)

Amount of contracts let

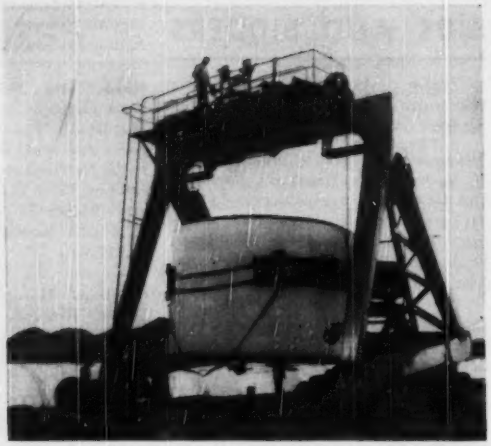
	4-Day Week of Feb. 16 1950	Cumulative 1950 (7 wks.)	Cumulative 1949 (7 wks.)	% chge.
Federal	$13.3	$317.2	$148.1	+114
State & Mun.	21.6	347.8	328.9	+6
Total Public	$35.0	$665.0	$477.1	+39
Total Private	101.1	689.1	576.2	+19
U. S. Total	$136.0	$1,359.1	$1,053.3	+29

Contracts by type of work

	This Week	Cumulative 1950 (7 wks.)	Cumulative 1949 (7 wks.)	% chge.
Waterworks	$0.6	$45.3	$18.2	+150
Sewerage	1.4	25.7	27.7	—7
Bridges	1.9	35.2	42.8	—18
Highways	8.2	102.4	65.8	+55
Earthwork, Waterways	4.7	42.8	60.2	—29
Buildings, Public	14.2	361.8	227.5	+59
Industrial	20.0	112.3	153.8	—27
Commercial	74.1	524.9	372.4	+41
Unclassified	11.0	103.7	85.0	+22

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

Placing Record Size Precast Pipe for Tracy Pump Plant



1 Starting its journey from the casting yard to its place in the pipeline, huge pipe section rides tractor-drawn rig.

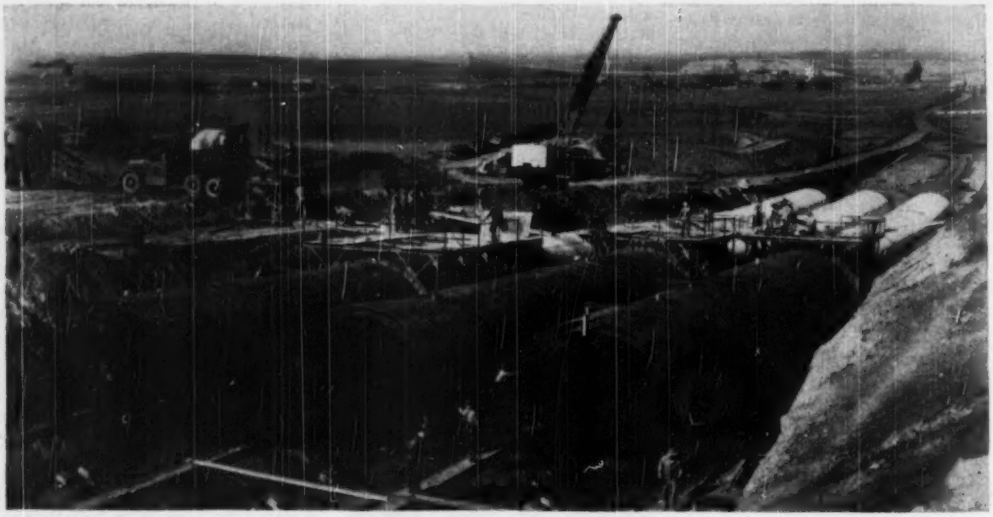
TWO MONSTER RIGS dominated the construction of triple discharge lines for the Tracy pumping plant of the U. S. Bureau of Reclamation's Central Valley project. The rigs were there to handle the 65-ton, reinforced-concrete pipe sections involved—perhaps the heaviest pipe ever precast. Each pipe section is 12 ft long and 15 in. thick, to form the three 15-ft ID discharge lines, each about 3,000 ft long. Reinforcing consists of a steel cylinder and one or two layers of reinforcing rod.

(Tracy pumping plant is part of a system by which water from the delta region of the San Joaquin and Sacramento rivers will be lifted 197 ft to the Delta-Mendota canal. Capacity of the pumping system is 4,600 cfs—second in size only to the Grand Coulee pumping plant of USBR's Columbia Basin project.)

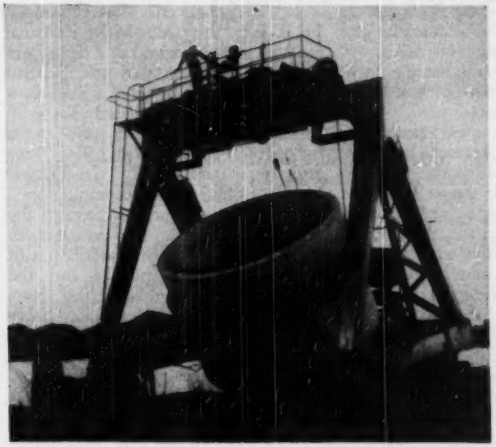
• **Special carrier**—To handle the 65-ton pipe sections, a special pipe carrier was developed by Kenneth James, chief engineer for United Concrete Pipe Corp., lead contractor on the pipe work. (Small scale models were tested before the final giant rig was built.) The carrier picks up the pipe sections from the casting yard and transfers them to storage areas; then moves the sections to the ditch and turns them on their sides ready for the laying crews. It is pulled by a tractor.

The pipe sections are lifted by means of a steel band that is slipped over them and tightened by hydraulic jacks. Oil pressure up to 3,000 psi is developed by oil gear pumps powered by a 125-hp motor. The pressure system is mounted on the rig and is independent of the tractor. Oil pressure also powers the lifting mechanism.

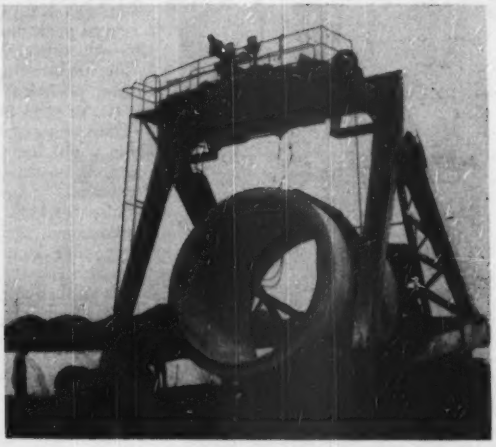
• **Novel crane lays pipe**—Actual pipe



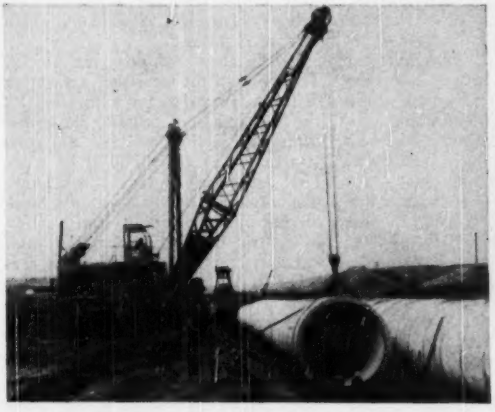
WHERE NO STEEL LINER PLATE IS REQUIRED (near top section of the discharge pipes) concrete was poured monolithically. Forms travelling on rails were used in pouring operations.



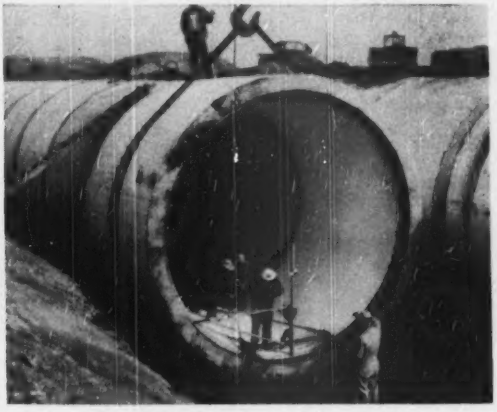
2 With power supplied from tractor winch, built-in crane on the rig starts turning 65-ton section on edge.



3 With the pipe-section in position for handling by crane, the rig moves to correct spot.



4 With slings around special attachments placed on the pipe, heavy-duty crane puts section into exact position.



5 Final positioning is done by two men with a manually-operated comealong. Others check distance between sections.

laying is accomplished by a heavy crane that can lift 100 tons at 12 ft. The laying system involved is similar to that used on other West Coast pipeline jobs by the same contractor. Experience and know-how obtained on these other jobs made the Tracy operation seem relatively simple—but it wasn't.

Close tolerance operation of the crane and teamwork on the part of the laying crew were the keys to smooth progress. On good days, as many as 25 pipe sections were placed.

To provide operating room for the crane, only one ditch was excavated at a time—for its entire 3,000-ft length. After the pipe was installed, a second ditch was dug and the process repeated.

As the heavy pipe sections are lowered into the ditch, a coffin jack is attached to the front end of the pipe (bell end) and to one of the previously laid joints. Then, as the pipe nears its final position, two men operating the jack, or comealong, pull it into place. Minor corrections in alignment are made by hydraulic jacks working against the side of the ditch.

To get a good foundation and to make sure that the alignment is maintained, lean concrete is poured around the bottom of the pipe to a depth of 2 ft 9 in.

Joints are of the plain bell-and-spigot type. However, to make them watertight, they are thoroughly calked with a lead fiber, then grouted on the outside and gunited on the inside. On most jobs grout is adequately retained by a heavy paper wrapped around the pipe and held in place by the backfill. However, on the Tracy job it was found that much grout was lost, which led to gluing the paper to the pipe. Normal procedure also is to plaster up the inside of the joint. However, at Tracy the joints are big enough to make guniting feasible.

• **Alternate bids received**—Total length of the discharge lines from the pump plant is about 1 mile. Only 3,000 ft of this is made up of precast pipe. The other 2,000 ft was poured in place as a monolith.

Difference between the two sections is that the pressure on the precast pipe is such that steel-cylinder reinforcing was required. Total thickness of this precast pipe is 15 in.; 13 in. of this is outside of the steel cylinder and the remaining 2 in. inside. Pouring the 13-in. outside thickness in place is a relatively easy job, but the inside 2 in.

EIGHT VIBRATORS (five near bottom and three near top) shake the concrete down into forms. All eight vibrators operate until concrete is above halfway up in the forms, then bottom five are shut off.

is an entirely different matter.

Accordingly, when bids were called for the 3,000-ft section involving steel-cylinder reinforcing, two alternates were permitted: Monolithically poured and precast. The latter was found to be significantly cheaper because experience in precast-pipe construction developed by the successful bidder takes much of the risk out of the job. Manufacturing methods used are quite similar to other large cast-on-end concrete pipe jobs.

• **Special yard needed**—The primary difference is that these pipe sections are so heavy that a special pipe-casting yard was constructed at the job. On other work the pipe had been cast at a central plant and trucked to the job site—sometimes nearly 100 miles.

The pipe-casting yard has eighteen casting positions. Also included are six sets of steel forms.

The casting stations are strung out along a rail line. Locomotive cranes operating on this rail lift the reinforcing assemblies (made up at the contractor's Stockton plant), put them in position and then place the forms. These same locomotive cranes bring concrete in buckets from a conveyor belt from the job central mixing plant. About 29 cu yd of concrete is required for each pipe section.

• **Effective vibration**—In addition to the removable forms, success of the pipe-casting procedure is mostly dependent on effective vibration. Eight pneumatic vibrators are mounted on the outside form—five at about the lower quarter point and three at about the upper third point. Vibration frequency is 9,500 rpm. All vibrators operate until half the concrete (3 in. slump) is poured and then only the top three work the concrete down. Result is a dense concrete worked down around the intricate reinforcing.

Two 500-cfs air compressors feed air to each of the eighteen stations to operate the vibrators.

The pipe sections are steam cured in a plywood housing for 36 hours. A central boiler makes 100-deg F wet steam that is piped to each station.

After the initial cure, the pipe carrier moves the sections to storage areas where a pigmented membrane compound is sprayed on for final curing.

Pipe production averaged 6 to 8 sections a day. Because laying rates were much greater, pipe-making started well in advance.

• **Central Valley feature**—The Tracy pumping plant is an essential feature of the Bureau of Reclamation's Central Valley project. Water pumped by it into the Delta-Mendota canal replaces water diverted at Friant Dam into the southern end of the San Joaquin Valley by the Friant-Kern canal. Some water is already being diverted at Friant, but before major quantities can be used, the Tracy pumping plant and the Delta-Mendota canal must be completed.

Much of the structural parts of the plant are finished. However, yet to be accomplished is the installation of the six 22,500-hp pumps and the electrical system leading to the plant. Partial operation of the Tracy installation is expected in July, 1951.

Tracy pumping plant is a project of the U. S. Bureau of Reclamation, L. N. McClellen, chief engineer. Oscar G. Boden is construction engineer on the Tracy work and J. R. Granger is resident engineer.

The same contractor combination has been successful low bidder for all four contracts on the Tracy work to date. This involves $10,000,000 worth of construction.

Briefly these contracts include (1) The pump-plant structure, excavation of the intake canal and excavation for the discharge lines, building the monolithic-pipe section and the discharge structures; (2) the 3,000 ft of triple 15-ft dia precast pipes; (3) installation of pumps and motors and finish work on the pump plant; (4) construction of control building and switch yard.

Contractor on all this work was S.U.H.B. These initials stand for each of the four firms involved in the joint venture: Stolte, Inc., Oakland, Calif.; United Concrete Pipe Corp., Baldwin Park, Calif.; The Duncanson-Harrelson Co., Richmond, Calif.; and Ralph A. Bell, Monrovia, Calif. Stolte, Inc. was sponsoring contractor for all of the work except for the precast-pipe casting and laying. This latter was sponsored by United Concrete Pipe Corp. George Waters is project manager for the contractor combination.

New Reinforcing Bars Show High Bond Strength

Reinforcing bars meeting ASTM Specification A305-49, which was adopted last year, performed much better than the older type bars in bond tests made at the National Bureau of Standards. A previous series of tests led to the adoption of A305 as a tentative specification, and the present series indicated two desirable revisions when A305 was advanced to standard.

One revision changed the maximum average spacing of bar deformations to 0.7 the nominal size of the bar. The other changed the minimum height of the deformations to 4½% the nominal size for ⅜-in. bars and to 5% for bars ¾ in. and larger.

Results of the second tests are reported in the JOURNAL OF RESEARCH of the National Bureau of Standards, Dec., 1949, Paper RP2050, "Bond of Concrete Reinforcing Bars," by Arthur P. Clark.

The tests also showed that deformations of the bars that had the highest values of bond had bearing areas equal to or greater than the bearing area provided under A3050's limitations of maximum spacing, minimum height and length of deformations. The ratio of the shearing areas to bearing areas were less than 10. These results indicated that for good bond a maximum ratio of the shearing to bearing areas of 5 or 6 is desirable, provided the specification requirements are met.

In these tests, plain bars gave the least bond; the old type of deformed bar gave a somewhat higher bond, and the rest of the bars gave still higher values, with those meeting the new specification showing the highest bond.

Upside-Down Truck For Lining Pipe

L. F. Booth
Vice President Rome Construction Co. Wickford, R. I.

A SIX-WHEELED TRUCK CHASSIS—inverted so that pipe lengths rolled on the four rear tires parallel to the axle—has been utilized to line about 10,000 ft of reclaimed 24-in. cast-iron pipe for the Ashco Industrial water distribution system at Ashtabula, Ohio. The engine and gears were remounted on the inverted frame to provide power for high-speed rotation needed to deposit mortar centrifugally on the pipe interiors.

• **How it's done**—Set up at the pipe unloading and storage area, the "spinner" consisted of the inverted six-wheel chassis, and a 20-ft "spoon" for charging the pipe with mortar. Mortar was mixed in a ¼-yd mixer. Pipes are lifted to and from the machine and storage piles by truck crane.

Modifications to the truck chassis were fabricated in the field. The engine was remounted on the inverted frame; the clutch, gears and drive were re-used in new positions. Two idler wheels with pivoted arms—to hold pipe on the wheels during spinning—were attached to the frame.

The loading spoon was made by splitting a 20-ft length of 6-in. pipe lengthwise. It was mounted on a longer horizontal stem that rode on bracketed rollers.

Loaded with mortar from pails, this trough was run into the 24-in. pipe to be lined and turned upsidedown to dump its load.

Charging was done while the pipe was rotated slowly. As soon as the charging spoon was withdrawn, pipe rotation was speeded up from 55 to 400 rpm. This rotation was maintained for five or six minutes to deposit mortar centrifugally on the pipe interior.

Amount of charge was gaged to give a theoretical uniform lining, ⅜-in. thick; the finished lining varied only slightly from this figure.

• **Spreading mortar**—The job-made lining machine was tilted so that excess mortar and moisture could be recovered at the low end. The pitch was 8 in. for the 20-ft pipe length. Less than 10 percent of mortar charged was recovered.

The entire cycle—positioning a length of pipe, charging, spinning and returning it to the storage pile—required twelve to fifteen minutes. Under this cycle, four pipes per hour were lined with a crew of six.

The labor crew consisted of three laborers for mixing and loading, a hoisting engineer operating the spinner and craneman and riggers.

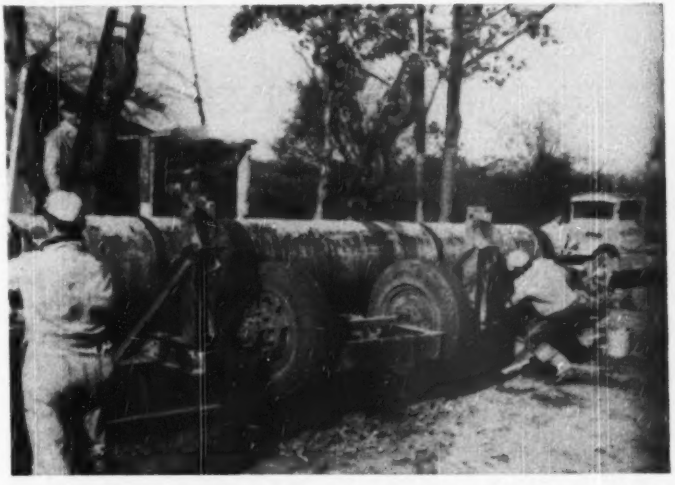
Salvaged from surplus ordnance plants at Memphis, Tenn. and Baldwinsville, N. Y., the reclaimed pipes are being used in a distribution system that will furnish water to chemical-processing plants in the area.

The Ashco project includes a lake intake crib, twin 24-in. CI distribution mains and an elevated storage tank centered among the chemical-process plants served.

The industrial water-supply system was designed by Sanderson & Porter of New York City. It was installed by the Rome Construction Co. of New York and Cincinnati.

Cost of the lining operation including the spinner was about 60¢ per foot.

CEMENT MORTAR for lining is fed into a 24-in. pipe by a six-inch trough . . .

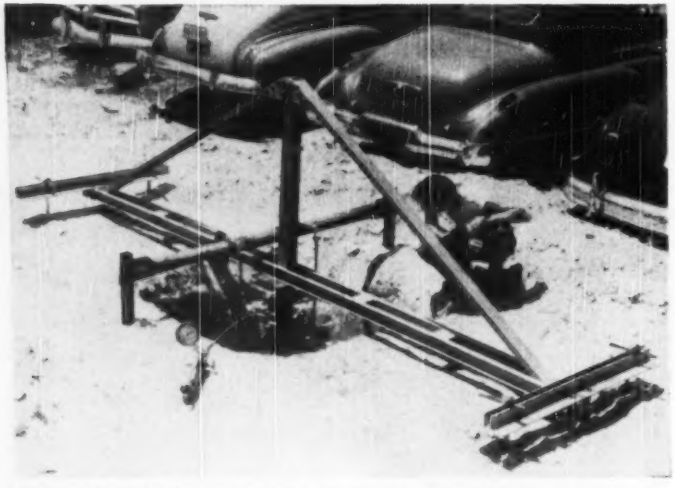


THEN THE PIPE is rotated on inverted truck to deposit mortar centrifugally.

How to Cut Costs On Soil Load Testing

George F. Sowers
Associate Professor of Civil Engineering, Georgia Institute of Technology, and Consulting Engineer, Law-Barrow-Agee Laboratories, Atlanta, Ga.

SOIL TEST LOADINGS as commonly made (top) are costly, difficult to conduct and slow. They can be made more quickly and at much less cost through use of the anchored truss arrangement shown in the lower photo.



USE OF ALUMINUM SECTIONS for the truss in this load testing arrangement cuts down the labor costs and facilitates setting up the equipment.

FOR MANY YEARS soil bearing tests have been used to determine the allowable pressure of foundations on the supporting soil. Although in some cases the results of such tests have been inaccurate or misleading, such load testing is still required by many building codes, and in many situations it is the best method for determining the ability of the soil to support a foundation.

Most load-testing procedures heretofore commonly used are cumbersome and expensive, and their results are difficult to interpret intelligently. New equipment and procedures, developed in the Soil Mechanics Laboratory of Georgia Institute of Technology and by the Law-Barrow-Agee Laboratories, Inc., have streamlined the test and at the same time provided results that are capable of ready and useful interpretation.

The usual equipment for a load test consists of a heavy wood platform atop a 12-in. square wood post. At the base of the post is the test plate. A pit is dug to the footing level, and the plate is placed on the soil to be tested. The platform extends out of the pit and is held in place by guy wires. Pig iron, lead, or brick, piled on the platform, provides the load, and settlement of the plate is measured by an engineer's level sighting on a rule or level rod attached to the platform.

At best this equipment is cumbersome and expensive: Five to ten tons of weights must be borrowed or rented, hauled to the site, and placed on the platform in increments. It is not unusual for a loaded platform to tip over in spite of the guy wires, and spill the weights, ruining the test and endangering lives. The typical cost of conducting one test of this sort is $300 and the time consumed is often more than one week.

Other arrangements have been utilized from time to time, including a test plate loaded by a hydraulic jack reacting against a loaded truck, a water tank placed on the loading platform to eliminate the need for pig iron or lead weights, and a hydraulic jack reacting against guy wires anchored to the soil. All of these arrangements are either cumbersome to install on the typical building construction job or are considerably more expensive than the ordinary loading platform.

• **Streamlined equipment**—The new equipment combines the best features of several load test arrangements. A pit whose width is five times the width of the test plate is dug to the footing depth. A 14-ft aluminum truss is centered over the pit and anchored

at both ends by earth anchors such as those used for telephone guy wires. The truss is light enough to be moved by one man and can be dismantled in a few minutes for easy transportation to another site or for storage if necessary.

Details of the truss are shown in the accompanying drawing. The test plate is centered in the bottom of the pit and a loading post, consisting of a hydraulic ram, an adjustable screw, and a length of 2½-in. pipe is introduced between the plate and the truss. The screw serves to take the slack out of the system; and the hydraulic ram, activated by a hand pump, provides the load on the plate. Loads as high as 40,000 lb can be developed safely by this equipment, and are measured by a precision hydraulic gage on the oil pressure line.

A clamp attached to the hydraulic ram bears two adjustable arms. A steel beam is placed across the pit perpendicular to the truss, and anchored securely to the soil without touching the truss or the loading post. On the beam are mounted two micrometer-dial gages whose pointers rest on the adjustable arms of the clamp. Settlement of the test plate is reflected immediately in a change in the dial readings, and can be measured to an accuracy of 0.0005 in.

The entire equipment is light (every piece can be handled by one man) and can be easily carried on the ordinary pick-up truck. All of it can be fabricated in a contractor's shop or garage by using parts commercially available in most cities.

(The photo at lower left on the preceding page shows the entire assembly in operation. This testing equipment was originally designed for research, but it has proved to be so convenient and economical that many tests have been made with it to aid the design of building foundations.)

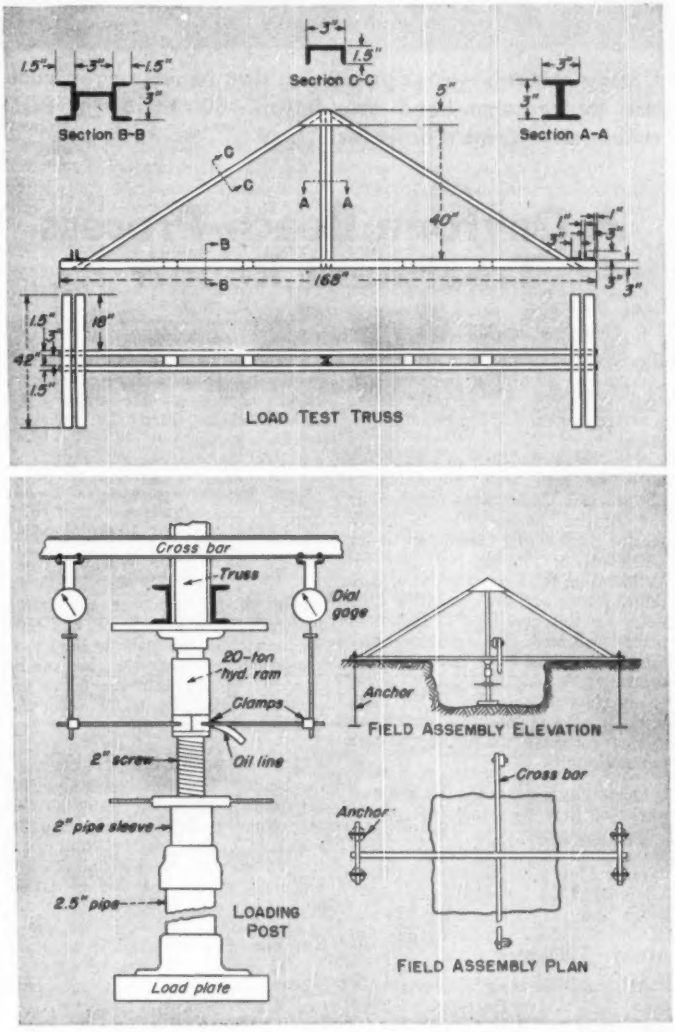
The installation requires the work of two men for from four to eight hours depending on the size of the pit required.

• **Load-test procedure**—The conventional load test method calls for applying a load to the plate and maintaining that load constant until no measurable settlement has occurred in a period of 24 hours.

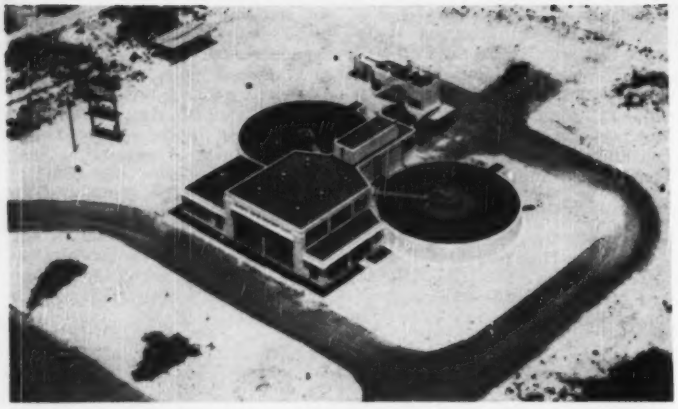
A greater load is added and again maintained as before. Since settlement of the plate is read with an engineer's level, this means the settlement rate must be less than 0.001 ft per 24 hours or less than 0.0005 in. per hour before additional load may be applied to the plate. Waiting for the settlement to reach the specified rate as determined by the engineer's level is tedious, and often requires one or two days; but with the new equipment that reads settlement to 0.0005 in., additional loads can be applied when no measurable settlement has occurred in one hour. The result is that an entire test with many different loads can often be run in less than a day instead of approximately a week that must be devoted normally to tests made by the conventional methods.

The ultimate settlement of the test plate under each load is presented on a load-settlement graph. The results of the tests made by the new equipment are excellent; generally, the graph is a smooth curve with little or no adjustment required.

A study is under way in the Soil Mechanics Laboratory of Georgia Tech to determine the value of different load test procedures and to develop methods of interpreting load test results to secure the allowable soil pressure beneath footings. This project is sponsored jointly by Georgia Institute of Technology and by the Carnegie Foundation for the Advancement of Teaching, acting through the agency of the University Center in Georgia.



LOADING POST of new equipment as set up in a test pit. The two gages measure settlement of the plate as load is applied by the hydraulic jack. Loads up to 40,000 lb can be applied and are read on oil-line pressure gage.



Upflow-settling sewage processing that begins to approach the performance-bond stipulation—60 to 65% BOD reduction—forms a basis for . . .

A Daytona Beach-Process Treatment Report

BIOCHEMICAL oxygen demand removal averaged 61 percent at the new Daytona Beach, Fla., sewage plant during a two-week period of continuous operation.

This result—which is in compliance with the equipment manufacturer's performance bond—was reported to the Second Annual Florida Public Health Engineering Conference at the University of Florida, Nov. 18. Joe Williamson, Jr., vice-president of Russell & Axon, who are consulting engineers for this new type of treatment plant, indicated that operating conditions have not been normal except for the two-week period. Large "slugs" of sewage were delivered to the plant intermittently during this period but calcium carbonate was introduced with fair uniformity.

Operating averages for the first two weeks of June with one half of the plant operating were:

Maximum Flow....3.95 mgd.–188%
Average Flow 2.10 mgd.–100%
Minimum Flow....0.67 mgd.– 32%
BOD Raw .....132 ppm.
BOD Effluent ..... 52 ppm.
Average BOD removal.....61%

Abnormal operating conditions have been due to construction involving new pumping stations and sewerage extensions, and incomplete laboratory control, he said.

Mr. Williamson said, however, that plant performance during other periods begins to approach the performance-bond stipulation. To support this statement, he listed the following monthly averages:

Month (1949)	BOD Removal %	Sus. Solids Reduction %	Moisture Sludge %	MGD Treated Average
April	40.8	89.5	....	2.25
May	55.0	96.0	41.0	1.80
June	59.0	97.5	52.2	2.32
July	60.2	96.0	51.6	3.30
August	58.5	95.0	46.0	3.30

(One tank, or one-half plant operation)

This is fair evidence that—when sewage becomes stronger (as new service connections are made to the sewerage system) and when the plant can be operated continuously—the 60 to 65-percent guaranteed BOD reduction will be met.

• **What the process involves**—Basically, the Daytona Beach process is high-rate chemical precipitation using a low-cost coagulant (ENR March 24, p. 26 and May 5, 1949, p. 21). This is accomplished with only one upflow combined coagulation and sedimentation tank and one vacuum filter.

The DB plant is designed for a maximum flow of 12 mgd. to serve 70,000 people. It consists of two 53.5-ft. dia. sedimentation tanks plus two 8-ft. dia. by 8-ft. long vacuum filters, laboratory, sludge-truck garage, office and space for two additional filters. Plant size is: 127 ft. long by 90 ft. wide.

The plant cost was $375,000—$4.70 per capita—at the postwar peak of Florida construction prices.

Except for the compact plant and low-cost coagulant, Mr. Williamson admitted, the plant involves "nothing new as far as chemical precipitation is concerned." Low-cost coagulant is obtained from the lime water-softening plant, the lime sludge being discharged to a nearby sanitary sewer and eventually received at the treatment facility. Excess calcium carbonate is not a problem, because combined carbonate and sewage sludge dewaters readily on the filters. This, he emphasized, solves two sludge-disposal problems because lime-sludge disposal alone at water plants is costly and difficult.

As background, Mr. Williamson pointed out that "Old-style chemical-precipitation plants required 20 min. for flocculation and 2-2.5 hrs. of sedimentation. These large tanks were not only costly but also the coagulant was usually very expensive. When conventional sludge-digestion and sludge-drying costs were added, the overall initial-and-operating expense of such plants was very high. For these reasons, chemical precipitation has not found much favor in the sewage-treatment field."

Calcium carbonate is the only coagulant used in the DB process. At first, Mr. Williamson revealed, that it was thought "activated silica or alum or both would be needed for good coagulation." This need has not been indicated, and "there is little doubt that the process will produce an effluent equal to the equipment manufacturer's guarantee of 60-65 percent BOD removal," he concluded.

• **Detention period is short**—Degree of treatment for the DB process—twice that of conventional primary treatment—is obtained with one-hour detention at peak flow. At this detention, the vertical-rise rate in the tank's separation zone does not exceed 2.25 gpm. per sq. ft.

In addition to its compact size and high rate of treatment, the DB process has other advantages. Among these are: grit separation, oil and grease removal, and dry and inoffensive sludge cake.

Despite high rate of upflow, Mr. Williamson said that the vortex under the hood on the floor of the combined-function unit results in deposition of very fine grit that is quite readily removable.

Greases and oils, he reported, are removed by the carbonate. Skimmers on tanks are not required.

Fresh carbonate-and-sewage sludge from the vacuum filters is very dry and inoffensive. Dried cake at the DB plant, which contains about 45 per-

cent moisture, is disposed of with garbage at the municipal land-fill site.

Heat-treatment, pasteurizing and composting experiments are being conducted on the sludge cake. The aim of this study, he said, is to determine if the cake can be satisfactorily and safely used as a commercial fertilizer.

• **Application with purchased coagulant**—Studies are now in progress to apply the DB process to cities without lime water-softening plants, Mr. Williamson revealed. "Minimum amount of calcium carbonate required for the process is about equal to the amount of suspended solids in sewage. In short, a sewage with 200-ppm. SS would require about 1,700 lb. calcium carbonate per million gallons of sewage treated."

Delivered cost of "high calcium lime dust" varies between $2.25 and $4.00 per ton. This cost can be reduced, he suggested, in limestone areas where raw rock is purchased and pulverized at the sewage plant.

For example, Travertine rock has been found near Sarasota, Fla. The possibilities of utilizing the DB processess with low-cost local material pulverized to 85 percent passing a 200-mesh sieve are being reviewed.

• **The DB process—improved model**—When the Daytona Beach plant was designed about two and a half years ago, it was known, Mr. Williamson confided, that some diffused air would be advantageous. Sufficient time was not granted, however, to convert upflow units to air-carbonate treatment. This has now been done (Fig. 2) and is termed "Aero-Accelator with the Daytona Beach Process."

Results of air-carbonate treatment are so much better than original processing that all future plants will include diffused-air installations, he declared. Maximum amount of air required is about 0.1 cu. ft. per gallon of sewage, the installation being designed so that the operator may apply air at his discretion.

Experiments on Sarasota's sewage using diffused air and pulverized rock, indicate 85 percent BOD removal with two-hour detention.

As a result of this and similar experiments, the equipment manufacturer—Infilco, Inc., Chicago, Ill.—has offered Sarasota a surety bond stipulating 82 percent BOD removal with 0.5 cu. ft. of air per gallon sewage and with 50 to 100-ppm. calcium-carbonate dosage. It should be noted that not as much carbonate is required with the higher utilization of air, Mr. Williamson pointed out.

DB process plants in the future, he summarized, will be designed on the following bases:

1. Where 60 to 65 percent BOD removal is adequate, units will be selected using one-hour detention for peak flow. Provision will be made for a maximum of 0.1 cu. ft. of air per gallon of sewage. Control for blower operation will permit delivery of various amounts of air depending on sewage and the stream characteristics.

2. Where 80 to 85 percent BOD removal is required, basins will be designed for two-hour detention of peak flow. A maximum of 0.5 cu. ft. of air per gallon sewage will be provided.

• **About operating costs**—Data are not only being collected on process performance but also on operation and maintenance costs. This information, Mr. Williamson promised, will be compiled and published soon.

Operation and maintenance costs of the DB process, he indicated, probably will not exceed those of conventional plants producing an equivalent effluent. When calcium carbonate must be procured and prepared locally, added cost for the original DB process will range from $700 to $1,000 per year per equivalent 10,000 population. With air diffusion, less than half this cost of calcium carbonate will be incurred because less lime is needed for effective treatment.

Operation and maintenance costs of the air-carbonate process—excluding small expense of carbonate—will be about equal to those of conventional activated sludge plants, Mr. Williamson estimated. Some municipal sewages and industrial wastes may require one to two grains of alum per gallon of sewage for best flocculation, he said.

• **Pointing to the future**—The possible economies of constructing compact DBP plants entirely covered in gas-tight buildings are now being explored, he revealed. Several gas-tight or underground plants conceivably could be located in heavily built-up areas of cities. This would eliminate the exceedingly high cost of interceptors and outfalls that are needed for conveying sewage to remote sites for contentional treatment.

BACKGROUND OF THE PROCESS

The Daytona Beach treatment plant was built as an experimental unit with the consent of Florida's Board of Health. But final approval —which hinges on plant performance—has not been given. This depends on conclusive performance tests that await completion of the sewerage system. Previous articles on the DB plant appeared in Engineering News-Record on March 24, 1949, p 26 and May 5, p 21.

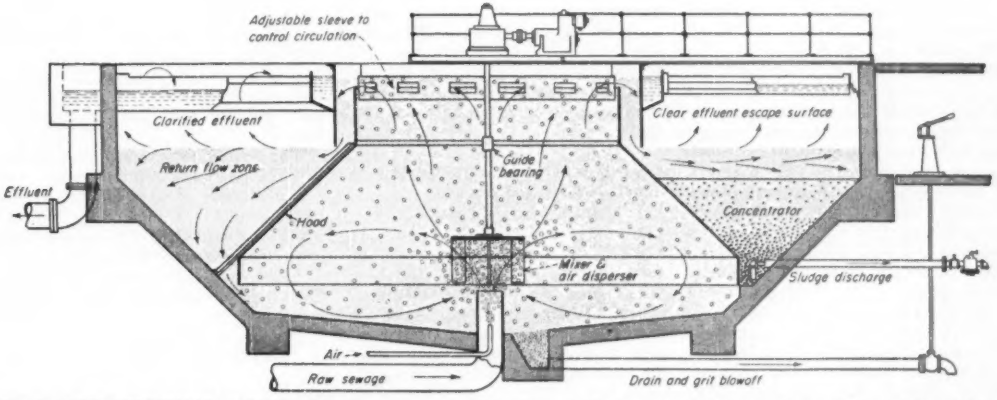


Fig. 2. BOD REMOVALS—as high as 85 percent—are reported when air diffusion is added to upflow settling. Only calcium-carbonate additions are made to incoming sewage.

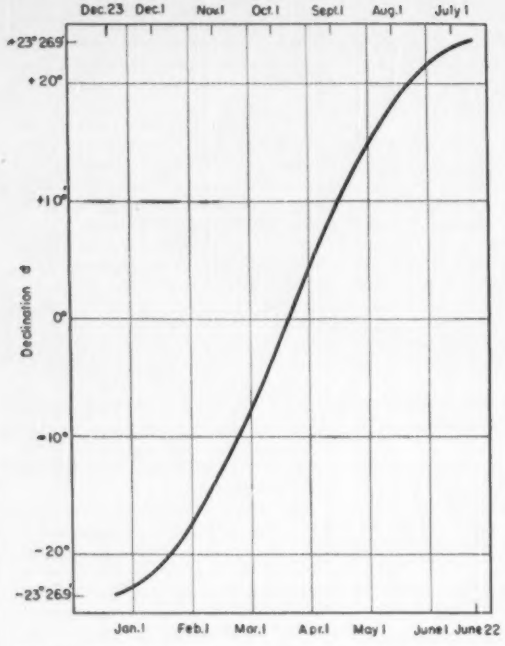


FIG. 1—DECLINATION of the sun at noon during the year.

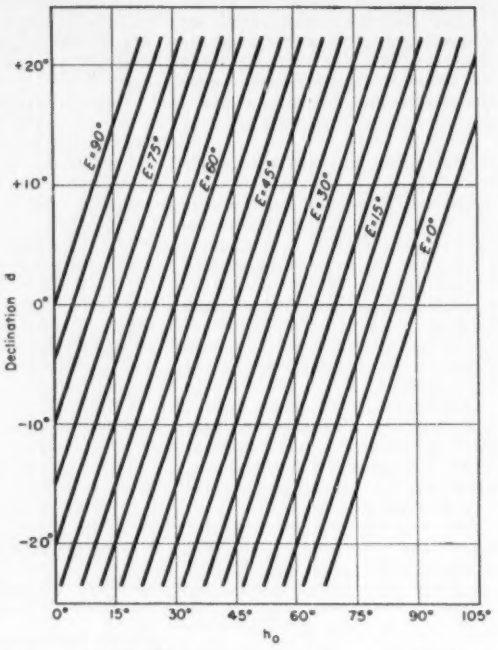


FIG. 2—ALTITUDE of the sun at noon as given by Eq. 5.

How to Orient for Sun or Shade

Jacob Feld
Consulting Engineer
New York, N. Y.

IN LAYING OUT HOUSES, hospitals, schools and stadiums on their sites, architects and engineers should take into account the angle of the sun at various times during the year. This requires the solution of trigonometric equations and, generally, considerable computation. The work can be greatly reduced, however, by using the formulas and graphs presented here.

The formulas can be solved to any desired accuracy. On the other hand, the graphs are approximate; but they are useful in many types of problems.

• **Applications**—If houses are properly oriented, winter heating requirements can be substantially reduced and shading provided in summer. For example, if windows are placed to face south, a designer can compute the length of an overhang that will keep out the summer sun, but let the rays of the low winter sun enter and warm the interior.

Structures for athletic purposes have to be oriented to balance the advantages and disadvantages of sun location and to make such conditions uniform for all fields in any one sport. This problem also involves correct location of the sun at definite time and date.

For instance, all professional baseball fields are oriented so that the pitcher faces the sun at 2:30 pm local time. Amateur fields are usually positioned at right angles to that axis. Football grandstands should be located so that the low sun in November does not blind the spectators. Also for the comfort of spectators, the roof overhang of a good baseball stand should be just sufficient to shade all the box seats.

• **Solution**—The following data are required to solve the problem:

G = longitude of the site.

E = latitude of the site.

t = Local-time hour angle, in degrees from solar noon, for the time of day under consideration. One hour equals 15 deg. Correction must be made for the clock-time deviation from solar noon because of location within the time belt and for daylight saving time.

d = declination of the sun at noon. The declination for each date is listed in the Nautical Almanac for noon Greenwich time and is positive when north of the celestial equator. The true declination at any location for noon of the date considered should be the corrected value for the number of hours (at 15 deg longitude each) from Greenwich. Corrections may, without much error, be taken as 5 hours later than Greenwich noon for Eastern, 6 hours for Central, 7 hours for Mountain and 8 hours for Pacific time belts. Declination is zero about March 21 and September 22, reaching a maximum value of 23 deg 26.9 min, positive June 22 and negative Dec. 21.

The desired information, for a given latitude, longitude and time are:

h = altitude angle of the sun above the horizon.

z = azimuth angle of the sun, measured clockwise from the north.

These values are computed from the standard spherical trigonometric equations:

$$\sin \tfrac{1}{2} t = \sqrt{\frac{\cos s \sin (s - h)}{\cos E \sin p}} \qquad (1)$$

where $s = \frac{1}{2}(E + h + p)$ and $p = 90 - d$. This formula can be transposed and solved directly for h:

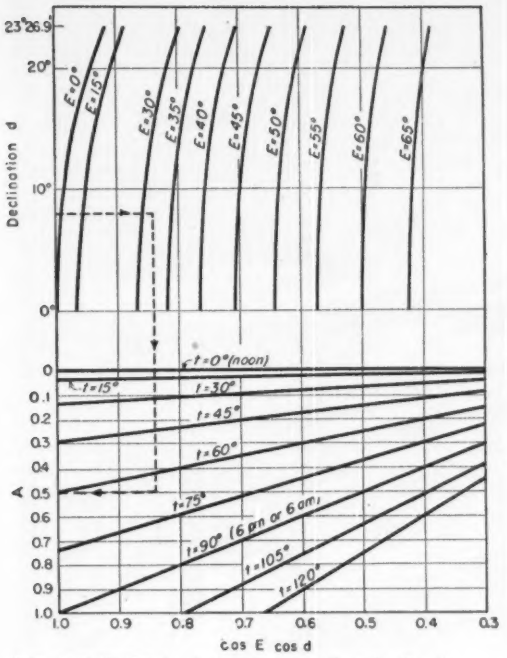


FIG. 3—CURVES for determining *A*, defined by Eq. 6

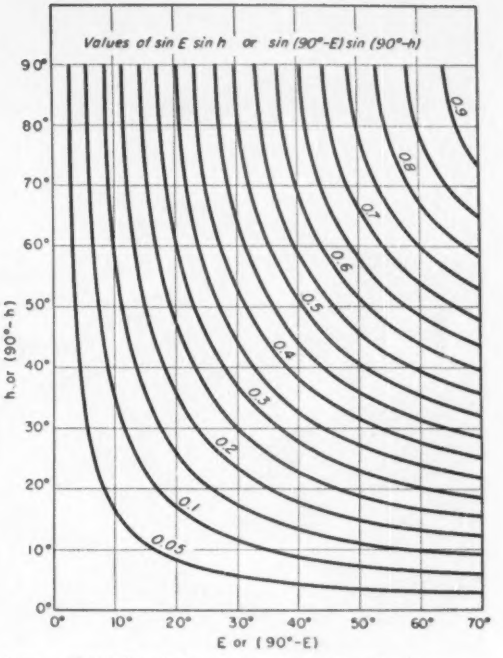


FIG. 4—VALUES of trigometric functions for Eq. 9.

$$\sin h = \sin E \sin d + \cos t \cos E \cos d \quad (2)$$

$$\cos \tfrac{1}{2} z = \sqrt{\frac{\cos s \cos (s - p)}{\cos E \cos h}} \quad (3)$$

Eq. 3 can also be transposed into the simpler form:

$$\cos z = \frac{\sin d - \sin E \sin h}{\cos E \cos h} \quad (4)$$

Eq. 2 and 4 are simplified forms that give values of h and z directly.

At solar noon, $t = 0$, and Eq. 2 reduces to

$$h_o \text{ (at noon)} = 90 - E + d \quad (5)$$

This value of h substituted in Eq. 4 gives $\cos z_o = -1$, or the sun is 180 deg from north. The sun altitude at noon for any date may be obtained from Fig. 1 (declination for various dates) and Eq. 5 and is also graphically given by Fig. 2.

If, for convenience, we set

$$\sin h = \sin h_o - A \quad (6)$$

the value of A can be obtained from the graph in Fig. 3, and the general solution for h is then simple.

At sunrise and at sunset, h is zero. Substitution of this value in Eq. 2 and 4 yields

$$\cos t_s = \tan E \tan d \quad (7)$$

$$\cos z_s = \frac{\sin d}{\cos E} \quad (8)$$

which set the time (t, degrees before and after noon) and position (z, degrees from the north to the east and west) of the sun at sunrise and sunset.

Eq. 7 shows that at the equator, where $E = 0$, sunrise always occurs at 6:00 am sun time. It occurs everywhere when $d = 0$, about March 21 and September 23.

This is only theoretically true, since it assumes sunrise when the zenith distance of the sun is 90 deg. Actually, the upper limb of the sun is visible above the horizon before that time, because of its diameter and because its rays are refracted beyond the horizon. For the purposes for which the data presented here are intended, however, the values given by the formulas are sufficiently accurate. When more exact times for sunrise at various latitudes are needed, they may be obtained from the Nautical Almanac.

For fixing the location of the sun at any time, Eq. 4 should be solved for z after h has been determined. This formula is a function of E, d and h; the time factor appears only in the h value. Eq. 4 can also be written:

$$\cos z = \frac{\sin d - \sin E \sin h}{\sin (90 - E) \sin (90 - h)} \quad (9)$$

For any two angles, E and h, the value of sin E and sin h can be taken from Fig. 4. Since $\cos E \cos h = \sin (90 - E) \sin (90 - h)$, this value can also be obtained from Fig. 4, by using the complementary angles of E and h. Where the value of cos z is negative, z is measured from the south, toward the east for forenoon and toward the west for afternoon.

• **Example**—Suppose a ball park is to be oriented for the boxes to be in the shade at the middle of the game. Sun position is required at 4 pm (Daylight EST) at Columbus, Ohio, on June 22. Latitude is 40 deg N and longitude is 83 deg. (It should be noted that EST is 5 hours (75 deg) earlier than Greenwich and 4 pm DST is the same as 3 pm EST, which is equivalent to 45 deg from noon.)

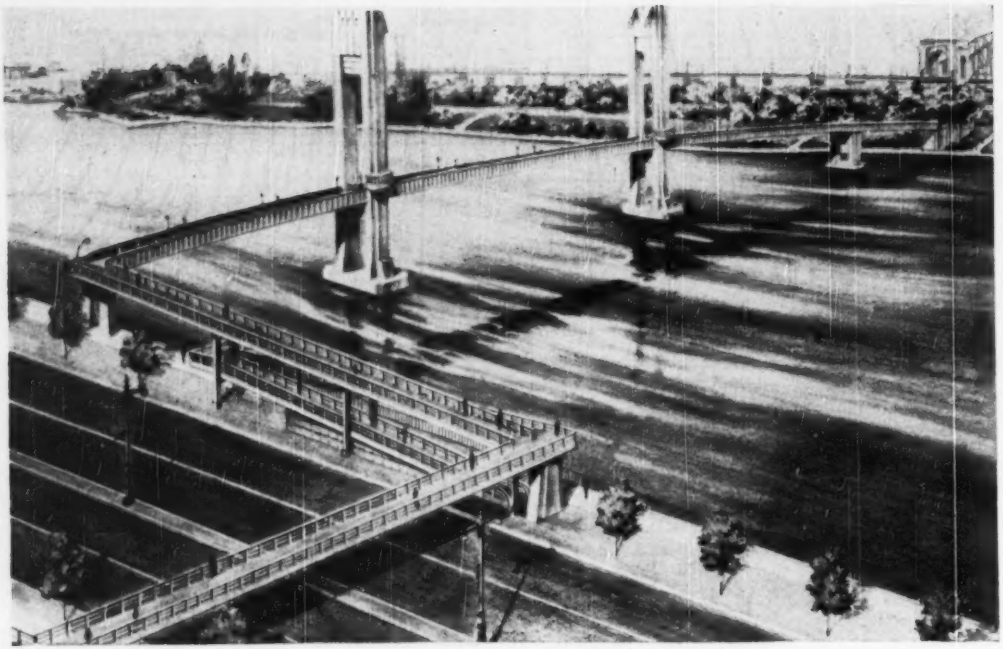
Thus, $G = 83$, $E = 40$ and $t = 45 + 75 - 83 = 37$ deg. According to Fig. 2, for June 22 $d = 23$ deg 27 min. Fig. 3 gives $h_o = 73\frac{1}{2}$ deg; i.e., the sun, at its highest at noon, is $73\frac{1}{2}$ deg above the horizon. From Fig. 4, with $\cos E \cos d = 0.7$ and $t = 37$, $A = 0.15$. Therefore, $\sin h = \sin h_o - A = 0.96 - 0.15 = 0.81$ and the altitude of the sun, h, is 54 deg.

From Fig. 5, for Eq. 9,

$$\cos z = \frac{\sin d - \sin E \sin h}{\sin (90 - E) \sin (90 - h)} = \frac{0.398 - 0.52}{0.445} = -0.274$$

With sine and cosine values being obtained from a slide rule, z is 74 deg.

Eq. 2 and 4 and tables of sines and cosines yield the more accurate values: $h = 54$ deg 50 min and $z = 73$ deg 20 min.

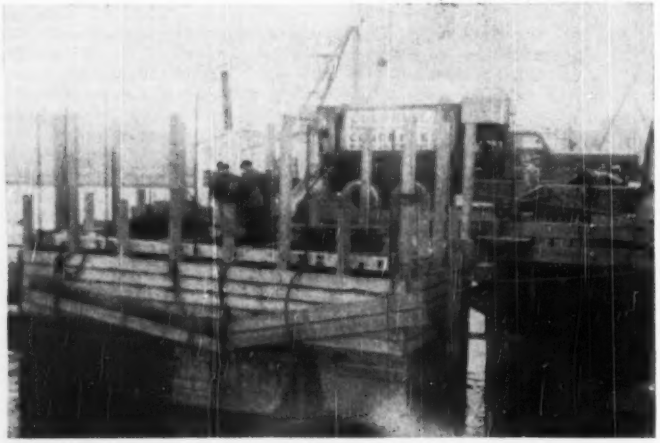


Four-span bridge over the Harlem River in New York City will embody . . .

World's Longest Girder Lift Span

Two silicon-steel plate girders are now being fabricated to span 312 ft over the Harlem River in New York City. They will set a new world's record for girder lift spans and possibly also for simply supported girders.

Longer girder spans have been built, but available records indicate they are all continuous. The longest in the United States is the 300-ft girder span of the Charter Oak Bridge over the Connecticut River at Hartford.



WEIGHTING A CAISSON—Small steel and timber caisson, floating in place for Ward's Island approach river pier, takes on its first concrete.

Spanning 312 ft 2¾ in. c to c of bearings, the new girders will be 10 ft deep—the maximum permitting use of multiple punches in fabrication. Each will consist of an ½-in. web plate, four angles 8 x 8 x ⅞ in. and six 22 x ½-in. cover plates, one extending the full length on top. Field splices will be located at about the third points.

Part of a 4-span, 956-ft long, plate-girder bridge that will carry pedestrians from 103rd St. in Manhattan to Ward's Island, where a park is being developed, the girders span the 300-ft Harlem River channel (ENR Oct. 27, 1949, p 31). In the closed position, they will provide a minimum clearance of 55 ft for ships; when raised, they will be at least 135 ft above the water. These clearances are the same as now exist at the Harlem River lift bridge on the Manhattan approach to the Triborough Bridge, about a mile north, and will limit the raising of the lift span to a few times per day.

The two towers of the lift span are 330 ft on centers. Designed to present a neat appearance, the shafts, ma-

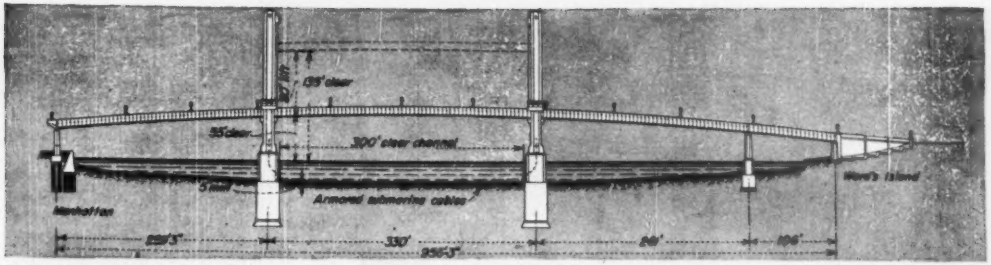


PLATE-GIRDER SPANS will carry pedestrians between Manhattan and Ward's Island. Over the main channel, a lift span 300 ft long will provide a clearance when closed of 55 ft and when open of 135 ft.

chinery housing at the top, and counterweights will all be of box construction. They will be supported by massive concrete pedestals, which will rest on single concrete caissons carried down to solid rock or to a firm bed of sand and gravel at a depth of about 80 ft. The piers will be protected on the channel side by timber fendering.

For the concrete pier of the 259-ft Manhattan sidespan, steel H-piles will be driven to bedrock. The 261- and 106-ft flanking spans on the Ward's Island side will be supported by a pier founded on a concrete caisson in the river.

On the Manhattan side, the approach ramp will connect with a pedestrian overpass crossing the Franklin D. Roosevelt Drive, which parallels the river. On the Ward's Island side a ramp about 100 ft long, consisting of a reinforced concrete slab and walls, will lead from the sidespan abutment to the park.

Designed for a capacity of 8,000 persons per hour, the bridge will carry a 12-ft wide walkway formed by a 2-in. steel grid filled with concrete. This floor will be supported at 5-ft intervals by shallow crossbeams. Deeper built-up floorbeams, part of the crossframes, will be placed at the ends of the span and at intermediate points about 20 ft apart. The girders will extend 3 ft 9 in. above the walkway to serve as railings.

Live load was taken as 840 lb per linear foot of bridge. Allowable stresses for the silicon-steel girders were 27,000 psi for tension on the net section; $27{,}000 - 270L/b$ for compression on the gross section, with a maximum of 23,000 psi; and 17,000 psi for shear in the webs. Carbon steel rivets in the main girders will be 1-in. dia, and were allowed 15,000 psi in shear and 30,000 psi in bearing. Other rivets mostly are $\frac{7}{8}$ in.

As an alternative to this design, designers investigated a high-level fixed span between the two towers, with elevator service between high and low levels. This scheme would have eliminated interference with shipping and the danger of boats with high masts or derricks ramming the lift span when in the low position. The idea was abandoned, however, when it was found that the pedestrian capacity was inadequate to meet peak demands except at excessive cost of elevator installation and operation.

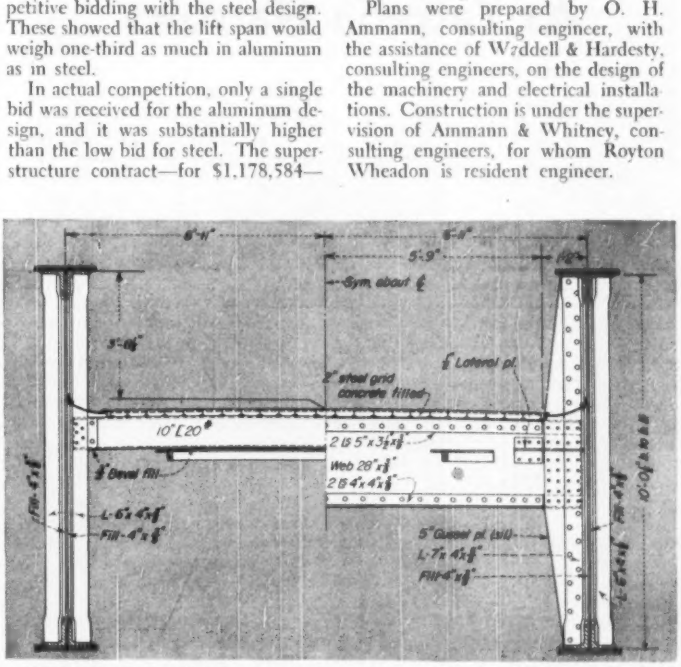
Preliminary studies also indicated that use of aluminum for the lift span could effect a material saving in the total cost, largely because of possible economies in machinery and electrical installations. The Aluminum Company of America, therefore, was authorized to prepare contract plans for the lift span in aluminum for competitive bidding with the steel design. These showed that the lift span would weigh one-third as much in aluminum as in steel.

In actual competition, only a single bid was received for the aluminum design, and it was substantially higher than the low bid for steel. The superstructure contract—for $1,178,584—was awarded to the American Bridge Co.

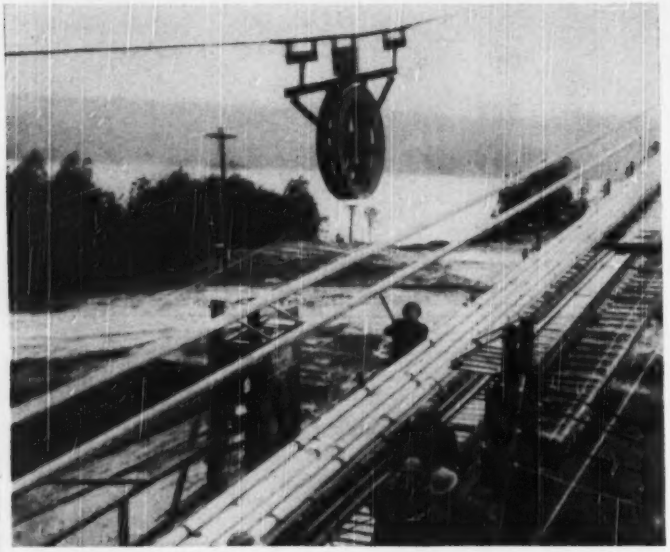
The substructure is under contract to Peter F. Connolly Co. and Senior & Palmer, who bid $809,840. The $2,000,000 bridge is expected to be completed late in 1950 to coincide with park development.

The bridge is being built for the Triborough Bridge and Tunnel Authority, of which Robert Moses is chairman and George E. Spargo general manager. Upon completion, it will be transferred for maintenance and operation to the New York City Department of Public Works. The Franklin D. Roosevelt Drive overpass is being constructed by the President of the Borough of Manhattan.

Plans were prepared by O. H. Ammann, consulting engineer, with the assistance of Waddell & Hardesty, consulting engineers, on the design of the machinery and electrical installations. Construction is under the supervision of Ammann & Whitney, consulting engineers, for whom Royton Wheadon is resident engineer.



LIFT-SPAN SECTIONS—showing shallow crossbeam at left; builtup floorbeam, forming the crossframe, at right.



DOUBLE SPINNING WHEEL lays four wires at a time in Tacoma Narrows Bridge cables. It returns empty since wire supply is from one end only.

Cable Spinning At Tacoma Narrows

THE NEW BRIDGE across Tacoma Narrows in the state of Washington will be the first major suspension bridge to be erected since its ill-fated predecessor collapsed under wind vibrations 10 years ago.

The spinning of its cables, now under way, may, therefore, be likened to the regaining of a lost art. Although the techniques being used are not new, there are several variations from usual procedures: (1) the initial lines were pulled across in the air instead of being dragged in the water; (2) cables are being spun from one side only; (3) tower saddles were permanently fixed, and the towers deflected. A description of the new, wider structure—being built on the old foundations—was published in ENR Nov. 29, 1945, vol p 716.

• **First lines across**—Usual practice for stringing the first line between the towers of a suspension bridge is to let it drag in the water as it is pulled across. Because of the possibility of fouling the wreck of the old bridge, however, a procedure was devised to keep the Tacoma line clear. The steps were as follows:

One end of a ⅜-in. wire rope was attached to a hoist at the base of the west tower. The other end was run through a sheave at the tower top, then down to tug which pulled it across to the east tower. A 12,500-lb pull by the tug was required to keep the rope relatively taut and above the water.

From the top of the east tower, a derrick line was dropped to pick up the end of the wire rope, to which was also attached a manila rope from a winch on the tug. As the manila rope was let out the hoists on the two towers reeled in the slack in the wire rope. When about 100 ft of manila rope had been played out, a signal was given, the rope turned loose, and the hoist at the west tower hauled in the ⅜-in. line as fast as it could. Although the line jerked hard when it was released and part of it went under water, the operation was successful. The entire job took about an hour and a half.

Two lines were strung in this manner—one between each pair of tower legs. These lines were then spliced at the east tower to form an endless line between two winches at the west tower. By operating these winches in one direction, the cables for the north catwalk were trolleyed into position. By reversing the winches, cables for the south catwalk were placed.

• **Catwalk construction**—Before the catwalks were installed, temporary structural steel braces were placed at the bottom of each tower leg. This served to limit tower deflection to the 1 ft allowable, as did the method of catwalk construction, which was balanced between main and side spans.

Each 10 ft wide catwalk is carried by two groups of five 1-in. cables. The cables are set on 9-in. centers in a 3-ft width at either side of the catwalk, which is decked in these areas with wire mesh. The 4 ft space between is covered with wooden slats.

It has been common practice on many suspension bridges to cut up the catwalk cables after the bridge cables are spun, and use them for the permanent suspender ropes. The contractor at Tacoma Narrows, however, followed the procedure that he used on the Golden Gate Bridge—to provide prestressed strands for the suspenders made expressly for that purpose. This procedure saves considerable field work as the suspenders will be prestressed, marked, cut, socketed on one end and reeled at the factory. It also eliminates use of permanent bridge material in a temporary service that might damage it.

An 800-ft length of footbridge was first erected on each catwalk at the middle of the center span. Then work progressed outward in each direction toward the towers. Simultaneously flooring was erected for the side-span catwalks. Thus, the loading on each tower was kept relatively uniform.

• **Towers deflected**—When it came to actual spinning operations, the towers were deflected shoreward so that as weight is added in the center span the towers will gradually assume final position (6-in. out of vertical shoreward under full dead load). By following this procedure the cable saddles on the towers can be permanently fixed.

On other bridges (with stiffer towers than at Tacoma) the tower saddles have been supported on a roller bearing assembly (Golden Gate) or on a friction surface (San Francisco-Oakland) so that they could gradually slide to position as weight was added.

• **Cables spun from one side**—The basic procedure in spinning suspension bridge cables involves a catwalk-supported tramway equipped with grooved wheels that lay two wires per trip in each cable as they shuttle back and forth from anchorage to anchorage. The principal variation at Ta-

coma Narrows is to feed wire from only one anchorage of the bridge (the east), with the result that the spinning wheels make the return trip empty. To make up for the resultant loss in spinning production, double wheels are used. Thus, 4 wires are laid in one cable instead of 2 wires in both cables on each trip of the wheels.

By spinning from just one anchorage—and deadheading the wheels on the return trip—only one operating set-up was required. This resulted in a considerable saving in installed equipment. It is made feasible by the fact that, as large suspension bridges go, relatively few wires (8,702) are required in each of the 20-in. dia Tacoma Narrows cables.

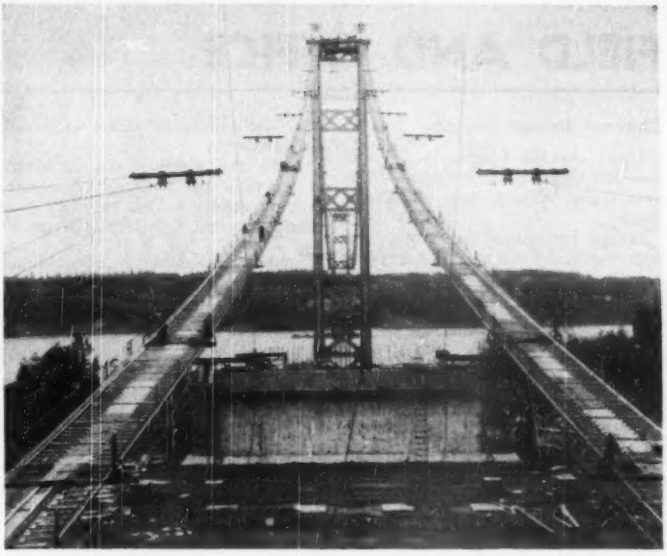
Another saving results from the fact that the heavy spools of wire have to be hauled to the east anchorage only. To reach the west anchorage, the wire would either have had to be trucked around the south end of Puget Sound or barged across. Either operation would have involved additional expense.

• **Reeling plant at Tacoma**—To minimize the investment tied up in heavy spools on which the wire is wound, the cable spinning contractor set up a reeling plant on a 3-acre site leased for this purpose from the Port of Tacoma. Wire comes to Tacoma in coils from the contractor's New Jersey plant by boat.

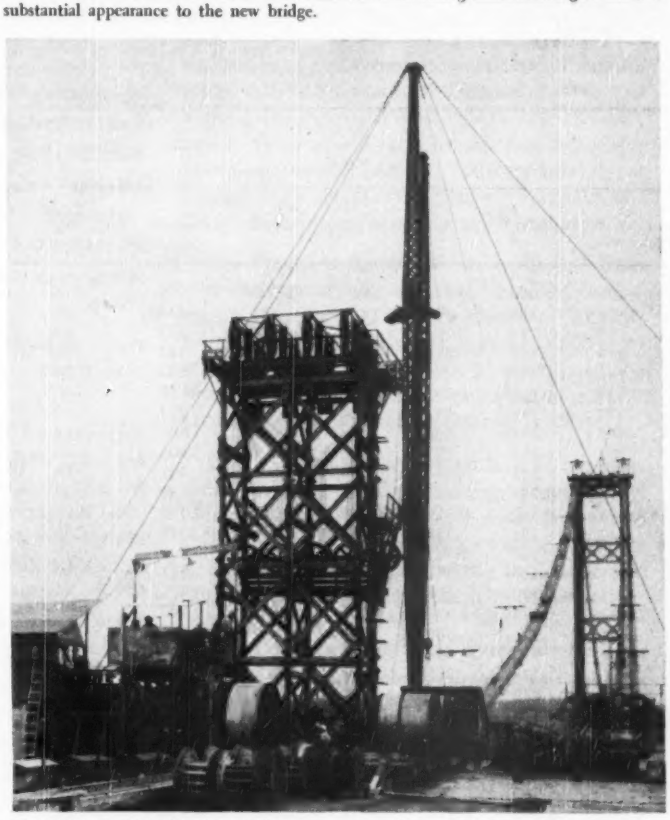
In the reeling plant the loose coils of wire are first wound on small spools and then transferred to larger spools where a tension of 200 lb is developed. The reason for the intermediate operation is that it would not be possible to wind the wire directly from the loose state to the 200-lb tension. Eleven coils of wire go onto the small spools, and nearly four small spools are required to fill a large spool. Each of the large spools will hold 8 tons of wire, or 160,000 ft. There are 225 large spools available, and they will each have to be filled three times.

Contractor for cable spinning on the Tacoma Narrows Bridge under a $2,932,861 contract is the John A. Roebling's Sons Co., Trenton, N. J. Robert J. Cole is erection manager for Roebling. H. W. Hills is resident engineer and F. M. Meyerend is field plant engineer. Details of the procedure were worked out by these three together with C. C. Sunderland and Blair Birdsall, chief engineer and assistant chief engineer of Roebling's bridge division.

Charles E. Andrew is chief consulting engineer for the Washington Toll Bridge Authority and is in general charge of the work. K. B. Arkin is resident engineer for the state.



CATWALKS that mount both towers to aid workmen during construction give the first substantial appearance to the new bridge.



SETTING UP SPINNING PLANT at east anchorage of Tacoma Narrows Bridge. The timber tower contains the counterweight sheaves which "float" on the wire to maintain a constant tension in it while the spinning wheel is traveling across the span.

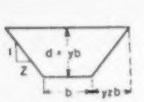
FIELD AND OFFICE

Channel Design Factors

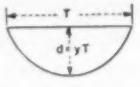
Open channel design for a given flow and slope is often limited by a third factor, velocity, fixed to prevent erosion.

Design of channel dimensions for both trapezoidal and parabolic sections have been worked out and are tabulated here for a wide range of flow conditions.

The parabolic section channel was considered, since in earth the trapezoid so often stabilizes into a parabola. Both sections appear below with dimensions b, d and T expressed in terms of y and z where z is horizontal distance per unit rise in slope of the channel sides; and y is the ratio of depth to bottom width in the trapezoid case and depth to top width for the parabola.



TRAPEZOIDAL SECTION



PARABOLIC SECTION

With z assumed, y can be found in the table and the required section is thus defined. The table gives y values for given flow data in terms of $\frac{R}{\sqrt{A}}$; where R is hydraulic radius found by the Manning formula, and A is the cross-sectional area, flow divided by velocity.

Example: Given Q = 100 cfs, n = 0.025, v = 2.5 fps, s = 0.009, and z = 2.0; determine trapezoidal and parabolic sections.

By Manning formula,

$$R = 1.656$$

$$A = \frac{Q}{v} = \frac{100}{2.5} = 40.0$$

$$\frac{R}{\sqrt{A}} = \frac{1.656}{6.32} = 0.262$$

Then, entering the table with $\frac{R}{\sqrt{A}}$ and z known, y is found by interpolation to be 0.143. And, by transposing the area formula for the trapezoidal section to get it in convenient terms—

$$b = \sqrt{\frac{A}{y + 2y^2}} = \sqrt{\frac{40}{0.143 + 0.041}} = 14.7 \text{ ft.}$$

and, d = yb = 0.143 × 14.7 = 2.11 ft.

For the parabolic section

$$A = \frac{2}{3} y T^2 \text{ and } T = \sqrt{\frac{3A}{2y}}$$

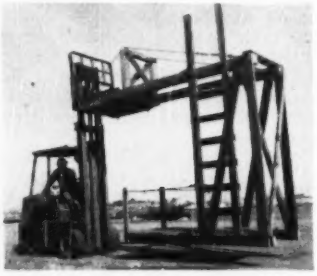
Entering the table with $\frac{R}{\sqrt{A}}$ equalling 0.262, y is found to be 0.110

$$T = \sqrt{\frac{3 \times 40}{2 \times 0.110}} = 23.4 \text{ ft.}$$

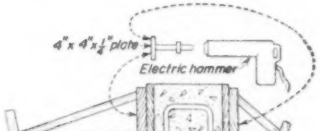
$$d = yT = 0.110 \times 23d = 2.57 \text{ ft.}$$

Similarly, depths and widths can be found for trapezoidal or parabolic open flow channel sections for any flow conditions within limits of $\frac{R}{\sqrt{A}}$ values in the table.—R. D. GLADDING, *Chief of Technical Section, Companhia Vale Do Rio Doce, Rio de Janeiro, Brazil.*

Values of $\frac{R}{\sqrt{A}}$						Design Factor
z = 0	z = ½	z = 1	z = 1½	z = 2	Parabola	y
0.000	0.000	0.000	0.000	0.000	0.000	0.00
.136	.136	.136	.135	.133	.116	.02
.185	.186	.183	.181	.176	.153	.04
.219	.219	.216	.208	.205	.187	.06
.244	.249	.240	.233	.225	.225	.08
0.262	0.265	0.248	0.250	0.239	0.252	0.10
.279	.281	.273	.264	.248	.273	.12
.292	.294	.286	.274	.261	292.	.14
.303	.307	.295	.283	.268	.306	.16
.213	.316	.306	.292	.274	.321	.18
.319	.325	.313	.297	.279	.332	.20
0.333	0.340	0.329	0.309	0.289	0.356	0.25
.342	.352	.338	.317	.296	.372	.30
.349	.360	.345	.323	.300	.382	.35
.351	.366	.351	.328	.304	.387	.40
.353	.370	.356	.331	.307	.391	.45
0.353	0.373	0.359	0.334	0.308	0.390	0.50
.353	.375	.362	.336	.310	.390	.55
.352	.377	.364	.338	.312	.387	.60
.351	.377	.365	.339	.313	.385	.65
.348	.378	.366	.340	.314	.380	.70
0.347	0.379	0.367	0.341	0.315	0.376	0.75
.344	.380	.368	.342	.316	.370	.80
.342	.380	.368	.342	.316	.366	.85
.339	.380	.368	.343	.316	.361	.90
.337	.380	.369	.343	.316	.356	.95
0.333	0.380	0.370	0.344	0.316	0.350	1.00
.283	.365	.368	.346	0.316	.158	2.00
0.248	0.355	.365	.345	0.317	.078	3.00



A FORK-LIFT TRUCK transports and positions a portable scaffold for dock maintenance at naval installations at Port Hueneme, Calif. Made of bolted timbers, the scaffold is bolted to the forks of the truck. The scaffold is balanced by the weight of the truck. Inventor, John Bibb, Port Hueneme, Calif., has applied for a patent.



VIBRATOR FOR SMALL FORMS—For smooth faces on street curb concrete, where the usual vibrators are too large, a small electric hammer with a piece of plate welded to a pointing tool does a good job of vibrating. The tool is run along the header forms.—Joseph Gamester, Portsmouth, N. H.

1950 . . .
Our Industrial Machine Is Running Down

In his recent Economic Report to Congress President Truman chalked up a constructive advance in his economic reasoning. He pointed out that if we are going to attain the worth-while goal of a $300 billion national income in the next five years, we must equip ourselves with more and better industrial tools. Of all the dynamic forces of expansion in America, he said, one of the most important is business investment.

That is fine. It is basic common sense. We have been saying that for years and we are glad to hear the President say it too.

But having hit this new high in his economic reasoning, the President failed to draw the right conclusion. He made the mistake of accepting the false conclusion that there is no shortage of business funds to pay for more and better industrial tools. "There are immense opportunities for business investment in nearly every segment of the economy," the President said, and further, "there are in general sufficient funds available to businessmen who want to seize these opportunities."

That just is not so – and the lack is not only serious; it can well be fatal.

It is a matter of the most urgent national importance that the President's recognition of the need of more and better industrial tools should be followed by effective action. *That calls for changes in the national policies that are now blocking and, unless changed, will increasingly block business from meeting this need. If business cannot get enough new tools, the result will not be higher, but lower standards of living five years from now.*

The President should talk this matter of business investment over with Senator O'Mahoney, the Chairman of the Joint Congressional Committee on the Economic Report. Senator O'Mahoney would take to the discussion knowledge of the investment situation recently acquired through his conduct of a series of Congressional hearings.

If he told the President what he told the press during the course of these hearings, he would say, "the private capitalistic system is being seriously threatened by a lack of venture capital." That is in direct conflict with the President's conclusion that "there are in general sufficient funds available."

This serious shortage of adequate investment in new plant and equipment is brought forth so that all of us can understand it by McGraw-Hill's annual survey of American industry's plans for investment in new plant and equipment in 1950, which has just been completed.

continued on next page

BUSINESS' PLANS FOR 1950

These are the major findings of the McGraw-Hill survey of "Business' Plans for New Plants and Equipment" in 1950. Made by the McGraw-Hill Department of Economics, the survey shows:

1. Industry – as represented by manufacturing, mining, transportation, and utilities – now plans to invest $12.4 billion in new plants and equipment this year. This is 13% less than was actually spent last year.

2. Manufacturing industries alone plan to spend $6.3 billion in 1950 for new facilities. This is also 13% less than they spent last year.

3. Manufacturers as a whole expect their 1950 sales volume to about equal 1949's.

4. Manufacturers will expand their capacity about 3% in 1950, under present plans. The largest part of their funds, 65%, will go to replace and modernize existing facilities.

5. Profits and reserves are expected to provide 92% of the 1950 investment funds of manufacturing companies. These companies count on new common stock issues to provide less than one-half of one per cent of the investment funds they will need.

6. Two out of three manufacturing companies review their investment plans monthly. Almost all companies go over them at least quarterly. The survey shows that companies changed plans rapidly during 1949 to meet changes in their prospects.

7. Other industries are also reducing their investment plans in 1950 by 13%. This coincidence arises from the fact that utility companies, notably the electric light and power companies, plan to spend only slightly less than in 1949. Railroads, on the other hand, are reducing their capital programs in 1950 by more than 40%.

A copy of a complete report on "Business' Plans for New Plants and Equipment" may be obtained by writing me at McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York 18, N. Y.

The results of the survey, which are summarized above, show that American Industry – as represented by manufacturing, mining, transportation and utilities – is planning to spend 13 per cent less for new plant and equipment in 1950 than it did in 1949.

Since the rate of investment in new plant and equipment right now is apparently about 15 per cent below the rate for 1949, the present level of business investment may be relatively steady in 1950. That would relieve the fear, expressed by President Truman in his Economic Report, that "if the downward trend in business investment were to continue, our prospects for full recovery and continued expansion would be seriously endangered."

BUT, at the rate of investment planned by American manufacturing industry for 1950, it would take 40 years to modernize thoroughly our present industrial plant and equipment. That would still leave undone the job of increasing it to meet the needs of an expanding economy of the kind sketched by President Truman in his message.

In attaining even this rate of investment, the McGraw-Hill survey shows American business must rely overwhelmingly on its own profits, which have declined as the country has left the postwar boom behind it. Most American companies cannot sell new common stock except at ruinously low prices. Here is one case where government action is really needed to help business and help to keep a rising American standard of living.

In order to get enough business investment to assure the "full recovery and continued expansion" sought by the President, our country needs:

1. Lower taxes on business income so as to release more money for new plant and equipment.

2. Liberalized depreciation allowances on old plant and tools so that business can buy new equipment faster.

3. Repeal of the present double taxation of dividends which now are taxed once as corporation income and again as personal income.

It is encouraging to have the President explicitly recognize the key importance of adequate business investment in providing steadily expanding prosperity. The next and most important thing to do is to make this recognition effective by discarding national policies which are blighting an adequate volume of business investment.

President, McGraw-Hill Publishing Company, Inc.

DEVELOPMENTS ABROAD

MORE POWER FOR ITALY—Just completed north of Venice on the Piave River this arch-gravity dam is part of the Piave-Boite-Vajont project being developed by the Societa Adriatica di Elettricita. According to Giuseppe Torno, the construction contractor, the ultimate power output will be 1.54 billion kwh. The dam is 360 ft. high and 1,340 ft. long. Its half-million cu. yd. of concrete was placed by two stiff-leg derricks (at the abutments) and four traveling cranes, the latter being 213 ft. high. Maximum daily placement was 3,470 cu. yd.

American architect plans Indian city

Planning a brand new provincial capital city from scratch is the task assigned to Albert Mayer, New York City architect, by the government of East Punjab, India.

The city hasn't been named yet but it is to take the place of Lahore, the former capital city which was lost to East Punjab when the Punjab was split between India and Pakistan. The site is a barren plain 140 miles north of New Delhi on the road to Simla.

Mr. Mayer, member of the firm of Mayer and Whittlesey, architects, has served as an adviser to the New York City Housing Authority and has built a number of New York apartment buildings. During the war he served as a lieutenant colonel of engineers in India. He has just returned from a visit there and reports that work on the new city will start in six months. The first phase will be a city to accommodate 150,000 inhabitants. It will be functionally modern, adapted to certain of India's traditions and habits.

The East Punjab provincial government is bearing the cost of the project, aided by a loan from the India government.

Building a whole city at once has precedents including Washington, D. C., Oak Ridge, Tenn., and Canberra, Australia.

Reynolds Co. to exploit Jamaica bauxite deposits

The Economic Cooperation Administration has executed a contract with a subsidiary of the Reynolds Metals Co. providing an advance of $11,000,000 to develop new high grade bauxite deposits in Jamaica.

The advances are to be repaid over a period of 20 years by delivery of aluminum metal to the Munitions Board stockpile of strategic materials, and the government also has an option to purchase up to $6,000,000 of aluminum at market prices.

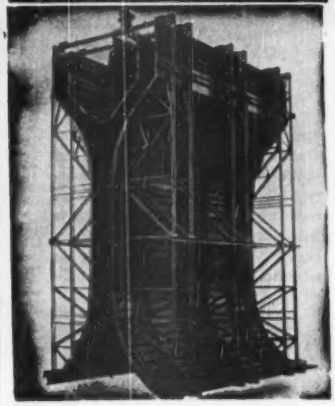
The mining project is being undertaken by Reynolds Jamaica Mines, Ltd., under the Marshall Plan, in cooperation with the British and Jamaican governments. The work involves total expenditures of about $14,500,000, and more than $1,000,000 has already been spent in exploration, drilling and research. Another million dollars will be for ore unloading at a Gulf port and for handling ore at the Hurricane Creek plant in Arkansas.

Australian Harbors

The new South Wales state cabinet has approved the construction of a $6,750,000 deep-sea port at Iluka, at the mouth of the Clarence River. Dredging and removal of a reef and the construction of a breakwater and

(Continued on page 52)

Another Job Showing the ADAPTABILITY of ECONOMY STEEL FORMS



Use this nationwide Form Rental and Engineering Service that saves costly Labor — Material — Time when placing concrete for

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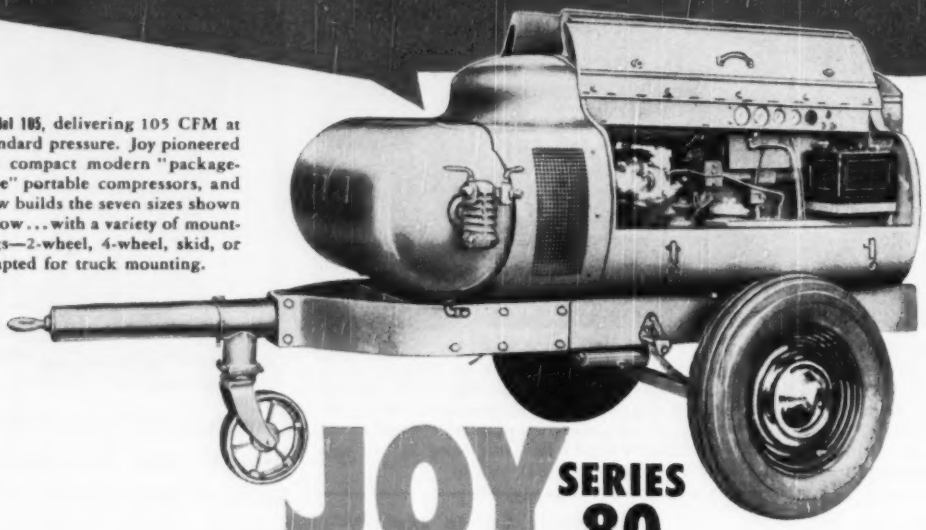
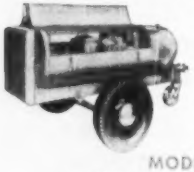
Here's *Portable* AIR POWER at Lowest Cost and Topmost Efficiency

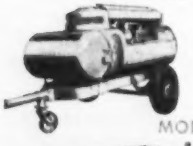


Model 105, delivering 105 CFM at standard pressure. Joy pioneered the compact modern "package-type" portable compressors, and now builds the seven sizes shown below...with a variety of mountings—2-wheel, 4-wheel, skid, or adapted for truck mounting.

JOY SERIES 80 PORTABLE COMPRESSORS



MODEL 60



MODEL 160

MODEL 210

Compare these Features!

- ★ 2 STAGE COMPRESSION
- ★ AUTOMATIC "ECONO-MISER" LOAD CONTROL
- ★ SEVEN SIZES—60 TO 630 CFM
- ★ NOTHING TO MATCH THEM FOR MODERN, COMPACT DESIGN—PORTABILITY—RELIABLE AND EFFICIENT OPERATION

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MODEL 315

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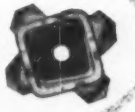
New TIMKEN® "Spiralock" rock bit offers more advantages than any other one-use bit!

1 STAYS ON MORE DEPENDABLY. New "Spiralock" union*—formed by square socket that spirals slightly as it recedes—has proved superior under actual on-the-job conditions.

*PATENT PENDING



2 EASIER TO GET ON AND OFF. A few blows of the drill and it's on. A few blows of a hammer and it's off. Smooth socket contours assure easy detachability.

3 MADE OF TIMKEN ELECTRIC FURNACE STEEL. Fast cutting. Long lasting. Has high resistance to wear and abrasion and the toughness to withstand constant pounding. Uniform quality.

4 NON-RIFLING. The "X" cutting edge prevents rifling in any ground.

5 CROWNED CHISEL PILOT. Easier starting and collaring.

6 SIMPLIFIES PREPARATION OF DRILL STEELS. Due to "Spiralock" union, steels last much longer, are easier to prepare and recondition. Square steel ends simplify fitting. They may be machined or forged.

7 ANY STEELS CAN BE USED. Existing drill steels of any size and section can be easily and quickly adapted.

ALL these advantages of the Timken* one-use "Spiralock" rock bit have been proved under actual on-the-job conditions. They are unequalled by any other one-use rock bit.

This revolutionary new bit is designed for drilling jobs where bit reconditioning is impractical or undesirable. It is available in a variety of types and sizes.

The one-use "Spiralock" bit is the latest addition to the famous Timken rock bit line, which includes the widely-used Timken threaded carbide insert and multi-use bits. Remember, Timken is the *only* company that offers you *all three* types.

For help in choosing the right bit for your particular job, use the 17-year experience of our Rock Bit Engineering Service. Write to The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

TIMKEN

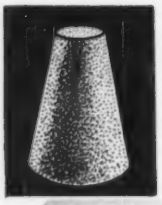
TRADE MARK REG. U. S. PAT. OFF.

YOUR BEST BET FOR THE BEST BIT ... FOR EVERY JOB

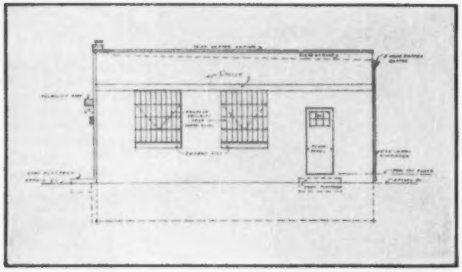
1 Timken threaded multi-use rock bit.

2 Timken threaded carbide insert rock bit.

3 Timken one-use "Spiralock" rock bit.



with CONCRETE
— the small extra first cost of test samples pays off in assurance of efficiency and durability of the finished structure.



with TRACING CLOTH . . .

The small extra first cost of Arkwright Tracing Cloth, over that of tracing paper, repays many times over in the efficiency and durability of valuable drawings.

Arkwright gives both immediate *and* future advantages. The expert work of the draftsman is made permanent. Your investment in time and money is backed by sharp, clean reproductive quality. Under repeated use — or on file for subsequent need — Arkwright assures perfect drawing performance year after year.

For every drawing worth keeping for future use — use permanent Arkwright instead of perishable tracing paper. Send now for generous samples and prove this superiority. Sold by leading drawing material dealers everywhere. Arkwright Finishing Company, Providence, R. I.

The Big Six Reasons Why Arkwright Tracing Cloths Excel

1. Erasures re-ink without feathering.
2. Prints are always sharp and clean.
3. Tracings never discolor or go brittle.
4. No surface oils, soaps or waxes to dry out.
5. No pinholes or thick threads.
6. Mechanical processing creates permanent transparency.

ARKWRIGHT
TRACING CLOTHS
AMERICA'S STANDARD FOR OVER 25 YEARS

(*Continued from page 49*)

wharves are to begin immediately.

Victoria has earmarked $4½-million for the establishment of a deep-sea port at Portland. In addition, the state government has budgeted $650,000 for outer harbor improvements at Portland, Lorne, Apollo Bay, Welshpool, Lakes Entrance, Port Albert, Bairnsdale and Point Lonsdale.

New Zealand Development

Between 1935 and 1949 the New Zealand Department of Works spent $89,040,000 and $82,600,000 respectively, on the development of Auckland and Wellington. Under a 10-year plan announced in 1946, work in progress or to be commenced shortly in the Auckland area will cost $50,120,000 and includes a harbor bridge and a government civic center at $7,000,000 each, improved railway transport facilities in the metropolitan area, $15,400,000, access railways, $4,900,000, highways, $7,560,000 and an airport, $7,400,000. Works at Wellington are expected to cost $37,800,000. Auckland had a population of 263,000 in 1945 and Wellington, the dominion capital, had 174,000.

Bridges for Brazil

Designs have been completed by Oscar Machado da Costa, consulting engineer of Rio de Janeiro, Brazil, for two major highway bridges, over the Sao Francisco River in northeastern Brazil.

One is a three-span continuous through-truss with a central span of 300 ft. Piers will be founded on 12 in. dia. steel cylinders driven 100 ft to rock and filled with concrete. Estimated cost is $1,000,000.

The second bridge, will be 4,500 ft long and consist of a series of continuous Wichert plate girders with occasional simple spans designed to be converted to lift spans to take care of possible shifts in the navigation channel. It will be founded on concrete piles, and the estimated cost is $6 million. Both bridges are to be built in 1950-1951.

Mexican Activity—Mexico will spend $1,750,000 this year to improve her key civil airports—twice the amount spent for that purpose last year; the government has approved construction of an irrigation canal at Matamoros near Brownsville, Tex., to irrigate 600,000 acres of cotton lands; the Public Health and Welfare Ministry has a budget allowance of $2,400,000 for water and sewer works; the legislature has deferred action on the "professionalist's law", a measure which would permit only native Mexicans to practice any profession in Mexico.

Lower Excavation Costs

Substantial savings in excavation costs are often possible with Transite* Sewer Pipe because of its high flow capacity. This often permits the use of flatter grades and shallower trenches. This is a particularly important advantage where the pipe must be laid at or below the ground water line or where rock excavation is involved.

As an alternate economy, designers may take advantage of Transite's high flow capacity by specifying smaller diameter pipe.

Other Transite Economies

Transite's long 13-foot lengths and light weight lower handling costs. And because there are fewer joints to assemble in the finished line, installation is faster, and more economical.

As a further economy, Transite's sleeve-type joints guard effectively against infiltration. This helps reduce the load on the treatment plant. Therefore, treatment costs are kept to a minimum—plant capacity is conserved for the increased loads incident to community growth.

Made of asbestos, cement and silica combined into a homogeneous material of great stability, Transite Sewer Pipe is corrosion-resistant both inside and outside. Tight joints safeguard against root trouble. And every Transite length is factory-tested for strength and uniformity. This adds up to low maintenance costs through the years.

For all the facts about Transite, send for brochure TR-21A. Address Johns-Manville, Box 290, New York 16, N. Y.

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*Transite is a Johns-Manville registered trade mark

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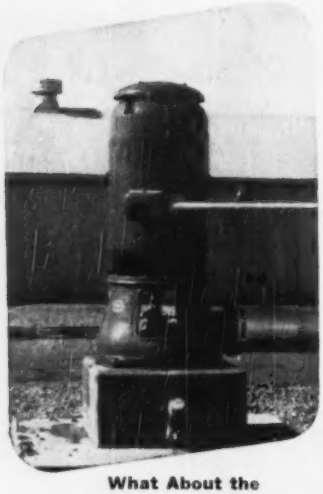

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A good reputation is more precious than great skill and fine quality. Strangely enough, a good reputation cannot be bought, nor is it ever offered for sale. It can only serve as a bond of human confidence so vital in modern business transactions. For seventy years Layne has been building a good reputation. The task isn't complete yet, nor will it ever be. But the job is far enough advanced to be bringing in many fine orders for Layne equipment and services. As a basic policy, it has aided Layne to become a great world-wide organization.

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Layne's planning supplements that of your own engineers, but Layne's work is complete from the test well to the finished, and in operation units—proven in production volume and fully adjusted for the task to be performed. Such a service is widely welcomed by the Nation's greatest—and sometimes smallest cities and industrial plants. It is an overall service that saves time and gives universal satisfaction. For further information, literature, etc., address

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MUNICIPAL AFFAIRS

START SLUM CLEARANCE PLAN—Papers were signed in Washington recently on reservations for cities filing applications for federal aid in the billion-dollar slum clearance and urban redevelopment program. Left to right, seated, are Nathaniel Keith, director, Division of Slum Clearance and Urban Redevelopment; Raymond Foley, administrator of Housing and Home Finance Agency; standing, James L. Stephenson, executive director, Housing Authority, Dallas, Tex.; Paul V. Betters, U. S. Conference of Mayors; and Senator Herbert Humphrey of Minnesota. (Wide World photo)

Housing agency appoints slum advisory committee

A 20-member advisory committee on slum clearance and urban redevelopment has been announced by Raymond M. Foley, administrator of the Housing and Home Finance Agency, and Nathaniel S. Keith, director of the division of Slum Clearance and Urban Redevelopment.

The committee of experts will advise on problems faced by communities in finance, large-scale land assembly, redevelopment, and transportation and utility factors, and also the supply of adequate housing for families displaced by clearance work.

The first six cities to file applications under the new act were Jackson, Tenn.; Albany, Ga.; Perth Amboy, N. J.; St. Paul, Minn.; Nashville, Tenn.; and Dallas, Tex. As of Feb. 3 total reservations were $27,655,080.

Members of the committee are: Harland Bartholomew, St. Louis, Mo.; Catherine Bauer, Boston, Mass.; C. B. Bennett, Los Angeles, Calif.; Ernest J. Bohn, Cleveland, Ohio; Maj. Thomas D'Alesandro, Baltimore, Md.; Mayor David Lawrence, Pittsburgh, Pa.; Edward R. Carr, Peter Henle and Geo. L. P. Weaver, Washington, D. C.; Otto L. Nelson, Jr., and B. Schwulst, Robt. C. Weaver, and Edward Weinfeld, New York City; William Muirhead, Durham, N. C.; Mayor Quigg Newton, Denver, Colo.; Hugh Potter, Houston, Tex.; James L. Stephenson, Dallas, Tex.; Herman O. Walther, Chicago, Ill.; Louis B. Wetmore, Providence, R. I., and Ellen Winston, Raleigh, N. C.

Ohio city planning

More than 100 state, county, and city officials recently attended a meeting of the Ohio Planning Conference. Discussions revolved around the program for revamping Ohio's highways and highway laws, and rebuilding cities under the new laws.

Nicholas Nolan, Dayton, chairman of the Montgomery County Planning Commission, was re-elected president of the conference. The group adopted a resolution endorsing the work of the Ohio Highway Study Committee, which is making a complete road survey.

In sessions on urban redevelopment, the conference was told by Ernest J. Bohn, chairman of the Cleveland City Planning Commission, that there won't be any slum clearance in Ohio without getting into public housing. The Ohio Urban Redevelopment Law demands that housing be provided for families moved out of blighted areas

(*Continued on page 56*)

NOW

A Tractor-Mounted All-Hydraulic Backhoe!

Here's a great new profit-making tool for contractors, cities, public utilities and towns. The New Oliver-Ware Hydro-Trencher is an all-hydraulic backhoe mounted on Oliver Industrial "77" or "88" Tractors. It's a smooth-acting, simply operated unit that will do a job comparable to much higher priced conventional backhoes . . . outperform many!

Note these profit-making features:

SIMPLE OPERATION. Smooth, finger-tip control hydraulic operation eliminates operator fatigue. Any man can operate this machine immediately . . . specially trained operators are not required.

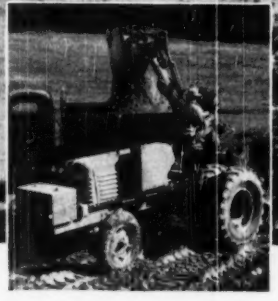
SAFETY. No cables to break . . . no slipping brakes. Safety feature in hydraulic system reduces wear and tear on engine. Engine speed seldom has to go beyond idling.

COMPACTNESS. Unit can work in areas where truck and crawler mounted units cannot work.

MOBILITY. Tractor-mounted unit moves easily and quickly from job to job under its own power and is ready to dig on arrival.

STABILITY. Individually controlled hydraulic outriggers allow operation from a level position . . . hold tractor in place.

VERSATILITY. Digs in any kind of ground . . . over 10 feet deep at speeds comparable to any conventional backhoe. Hydraulic controls give boom down pressure for fast digging . . . a full bucket every time.



A Swing Loader Bucket Attachment is available for use with the Oliver-Ware Hydro-Trencher and can be installed in a few minutes.

For the complete story on this new, profit-making unit, mail the coupon.

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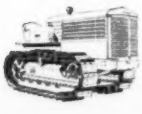
Industrial Division: 19300 Euclid Avenue, Cleveland 17, Ohio

A complete line of Industrial Wheel and Crawler Tractors



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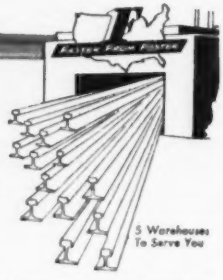
You'll get them FASTER FROM FOSTER

ONE TON OR A THOUSAND



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(*Continued from page 54*)

before the slum clearance program can be undertaken, and the money for public housing must come from the federal government. At the same time, the federal law removes the possibility of tying in public housing with slum clearance in Ohio until the housing projects are made tax exempt. Although the Ohio Legislature has agreed on the tax exemption, the Ohio Supreme Court has before it a test case from Cincinnati, to determine the legality of the act, (ENR Jan. 12, p. 27). Should the decision be unfavorable, the planners will look to the legislature to amend statutes.

Eighth bridge is proposed at St. Louis, Mo.

The St. Clair County, Ill., Board of Supervisors has authorized construction of an $8,500,000 bridge across the Mississippi River from Cahokia, Ill., to Miami St., in South St. Louis, Mo. Eastern approach of the bridge is planned at the intersection of Highway 3 and 157 in Cahokia with the eastern approach leading off Miami street.

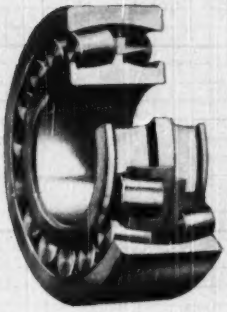
One of the reasons for the bridge is to induce St. Louis to locate its proposed second major airport at Parks Airport, at Cahokia. South St. Louis business groups, lead by the Chippewa-Broadway Business Association, have been urging the city to approve the proposed location of the bridge. The Board of Supervisors said they contacted Stifel, Nicolaus and Co., St. Louis, for insurance of bonds. Sverdrup and Parcel, Inc., engineers, have estimated the actual construction cost of the bridge at $6,500,000. The additional $2,000,000 is to be used for acquisition of the right-of-way, engineering, legal and other expenses. The city is now linked to the East Side by six bridges, and a seventh is being constructed by the city of East St. Louis just north of the Eads Bridge. The St. Louis bridges now being used, in addition to the famous old Eads Bridge, are the Chain of Rocks, McKinley, Merchants, MacArthur, and Jefferson Barracks bridges.

The new bridge would be built between the city-owned MacArthur Bridge and Jefferson Barracks Bridge. The village of Cahokia also has been interested in building a bridge across the river, and has filed an application with the Board of Public Service.

The proposed bridge would be elevated over Broadway in St. Louis, with vehicular ramps leading to Broadway and with the main approach starting from Miami street.

(*Continued on page 58*)

More Power to Lima-Hamilton Power Shovels ...through TORRINGTON SPHERICAL ROLLER BEARINGS



On the power take-off shaft of its shovels, Lima-Hamilton Corporation uses Torrington Spherical Roller Bearings to transmit power smoothly with minimum friction loss and wear.

Under shock loads, barrel-shaped rollers align themselves freely in the spherical outer race . . . can't bind or drag. Even load distribution is secured without alignment adjustments, and maintained under deflection.

Maximum life expectancy results from this combination of self-alignment with tremendous load capacity in Torrington Spherical Roller Bearings. Secure these advantages in your heavy-duty equipment—our engineers will be glad to help.

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▶ All six volumes give you figures, diagrams, charts and tables illustrating important principles and procedures. These books assure you of superior workmanship—ensure your work of the finest structural qualities. The library . . .

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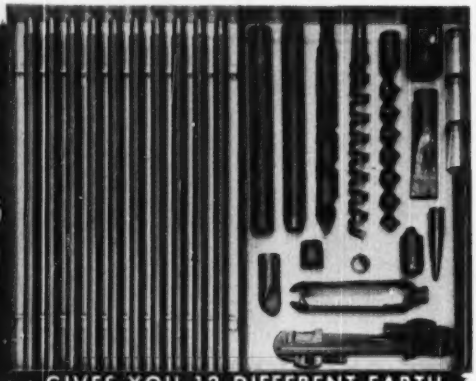

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We invite you to write us today for full details. There are great savings when you use this 12-tool sampling kit, so don't delay. 1

ACKER DRILL COMPANY, INC. SCRANTON 3 PENNSYLVANIA

(Continued from page 56)

Propose effluent sale

The San Leandro, Calif., city manager has been directed by the city council to work out plans for possible sale of reclaimed sewage effluent for industrial use.

Studies indicate that the reclaimed water could be delivered to plants in the San Leandro industrial area, concentrated in about 2 sq. mi., for as little as $50 per million gallons. Present cost of industrial water from the East Bay Municipal Utility District is about $170 per million gallons.

Effluent treated by the city's plant contains 50 parts of suspended solids per million, compared to the 400 parts per million in the untreated flow. Further refining to only 20 p.p.m. is considered possible by the addition of a small water-softening plant or reservoir.

The 7 mgd. plant handles domestic and industrial wastes separately. Treatment of domestic wastes includes processing by a direct-recirculation, high-rate trickling filter. Industrial wastes, however, receive only primary treatment (air flocculation and sedimentation). Thus, the domestic waste treatment unit can operate on a relatively uniform basis the year round; functioning of the process will not be upset by varying flows of industrial wastes that might reduce the quality of the effluent.

This dual flow system was set up in a $1,000,000 expansion of the plant a year ago. The enlarged system was designed by engineering office of Clyde C. Kennedy.

Present plans call for resale of only 1,700,000 mgd. of domestic wastes now flowing into San Francisco Bay. Later, as the discharge firms, 50 percent of the industrial wastes may be sold.

City Manager Wesley McClure, Charles P. Martin, director of the city public works department, and Harvey Milts, sewage plant superintendent, are developing the plans with the aid of the city chamber of commerce.

Buffalo Port Authority—First steps toward formation of a Buffalo, N. Y., Port Authority were taken when city officials met with Executive Secretary Michael J. Powers of the Albany Port Authority recently. The city comptroller was instructed to learn from investment companies the financial practicability of the authority; the corporation counsel was asked to draw up proposed legislation for an authority on the basis of the comptroller's findings. Further meetings with members of the board of supervisors and western New York congressmen to expedite the program were planned.

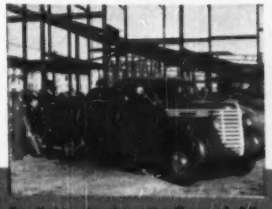
BIG JOBS, TOUGH JOBS, ON THE ROAD OR OFF—

GENERAL works faster, safer, cheaper,

Lasts Longer

● The General L. C. M., for most work off-the-road, has a massive, lugged tread that develops extra traction forward or backward. Exceptionally difficult to cut, chip or bruise even under difficult working conditions.

● The General H. C. T., for most work on-the-road, rolls easily, quietly; gives more safety, more quick-stopping power—rain or shine. Unusually thick, deep tread gives amazingly long mileage.



For lighter trucks—the General All-Grip's thick tread blocks give extra traction on or off-the-highway. Rolls quietly, smoothly; stops quicker... rain or shine. Ideal tire for pick-up trucks under heavy loads.

The General Tractor Grader Tire combines maximum drive-wheel traction with two-way, self-cleaning tread design for extra traction, forward or backward. The General Rib Grader tire steers easily; prevents side slip.

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SPECIFY GENERAL TIRES ON YOUR NEW EQUIPMENT

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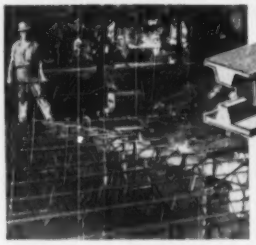
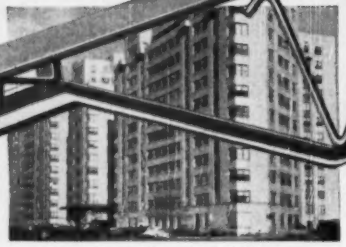


Truscon "O-T" Joists are easily and quickly placed in position.



Truscon "O-T" Joists used in 2601 Parkway Apts., Philadelphia. Aaron Kolish, Archt.

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MEN AND JOBS

M. Allan Wilson of Dover, Del., has been appointed chief engineer of the Delaware State Highway Department. He succeeded Col. W. A. McWilliams, who on Jan. 1 became assistant to W. W. Mack, engineer in charge of construction of the $40,000,000 Delaware River Memorial Bridge, Mr. Mack, also a former chief engineer of the Delaware State Highway Department, will retire this year. A civil engineer graduate of the University of Delaware, Mr. Wilson has been with the state highway department for 18 years. His previous position was as assistant chief engineer in charge of the division of tests, design, construction and maintenance.

Maj. Louis L. De Noya has become executive officer of the Tulsa, Okla., district office of the Corps of Engineers, replacing Lt. Col. H. F. Dyer, assigned to the American Military Mission for Aid to Turkey. De Noya is a C.E. graduate of Oklahoma A & M college 1941. He served in Italy and Africa with the 1st Amphibian Brigade II Corps and 5th Army and later was executive officer of the 1299 Combat Engineer Battalion in the Philippines and Japan. In 1947 he was assigned to the Plans and Training Division in the Office of the Chief of Engineers. Latterly he has had field duty at Hulah Dam in the Tulsa district.

Personnel changes in the North Carolina Highway Commission are: **Thomas A. Burton,** Seventh Division engineer Albemarle, N. C., has been transferred to Greensboro where he will replace **Hugh E. Noell,** who has been with the commission for 30 years, as Fifth Division engineer; and **M. E. Beatty,** assistant division engineer at Albemarle has taken over the position made vacant by Burton's transfer. **Ivan Hardesty,** senior right-of-way engineer at Washington has succeeded **J. W. Taylor** as district engineer at Washington, and Taylor has been made senior highway designer in the roadway department at Raleigh. **F. M. Edgerton,** second district engineer at Goldsboro, has been made district engineer at Nashville, replacing **T. D. Grantham,** who has become senior resident engineer at Wilson. **C. R. Cherry,** district maintenance supervisor at Goldsboro, has been transferred to the construction department, and **W. L. Kemp,** succeeds him. **Robert W. Dawson,** has replaced Edgerton as Second District engineer at Goldsboro. **W. H. Rackley,** Second District maintenance supervisor at Smithfield, has retired and has been replaced by **J. V. Walters,** formerly at Bunn, **J. P. Brown,** formerly of the construction department, has replaced Walters.

Miles O. Sherrill, civil-sanitary engineer, is principal engineer with Maurice L. Miller, consulting engineers, Louisville, Ky. He was associated with Michael Baker, Jr., Inc., consulting engineers, in charge of design and construction of sewage collection and disposal work and the utilization and disposal of industrial wastes.

Barton M. Jones has been appointed chief engineer and general manager of the Miami Conservancy District at Dayton, Ohio, succeeding **C. H. Eiffert,** who will continue as consulting engineer. Mr. Jones was one of Arthur E. Morgan's chief assistants during the construction of the conservancy works, and was responsible

NEW ½-YD. CRAWLER OUTPERFORMS LARGER MACHINES ON SAME JOB

No major part failure on Wayne Crane as rock job wears out 4 sets of manganese teeth

Wayne Crane Model 66 operated by Associated Contractors, Perrysville, Pa.

"Equipped as a pull shovel with a standard ½-yd. bucket, the new Wayne Crane Model 66 worked 16 hours a day in a river bed which was 75% rock. At times the machine was operated through three continuous shifts, not even shutting down to take on gasoline."

One Look Is Convincing

You'll know the minute you see this new machine that it's built to stand up in rough going—you'll see a real heavy-duty crawler frame—a rugged drive mechanism and antifriction bearings on all main shafts and at all critical points.

You'll agree that Model 66 offers you substantially "more machine"—more built-in hours of profitable operation than any crawler machine on the market today, and ***you will certainly like the price.*** See your Wayne Crane Distributor NOW!

For greater mobility he will recommend Wayne Crane Model 22 Rubber-Mounted, Self-Propelled Machine or Wayne Crane Model 44 "Corsair" Truck-Mounted Machine.

Manufactured by Wayne Crane Division, American Steel Dredge Co. Inc., Fort Wayne, Indiana.

You are invited to visit or call a Wayne Crane Distributor for help on any equipment problem. Complete service and parts facilities are maintained by Wayne Crane Distributors in all principal cities.

This ECONOMY Pump WILL DELIVER
• 115 m.g.d. of sewage flow
• 3 acre inches a minute of irrigation or drainage water
• 80,000 gallons of raw water a minute
The Economy Mixed Flow Volute Pump is designed for service where large volumes of liquids without heavy solids are to be handled. A high speed pump, it is comparatively small in size and thus inexpensive for its high capacity. Durability with minimum maintenance is assured by many construction features including anti-friction bearings which hold several months' supply of lubricant and are mounted close to the impeller.
These pumps can be taken down, inspected or cleaned quickly and with minimum trouble. Cleanouts are provided in both volute and suction. The rotor can be removed without breaking pipe connections.
Used in dry well type drainage jobs, condenser circulation, irrigation and similar large volume installations, Economy Mixed Flow Volute pumps are available in capacities from 3,000 to 80,000 G.P.M. For full details, construction and design features, write Dept. C B-2 for Catalog No. F-1049.
Centrifugal, Axial and Mixed Flow Pumps for all applications.
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Stang WELLPOINT SYSTEM
The Stang System has proved its efficiency and economy on both large and small jobs all over the United States. Stang engineering and supervision in planning, installation and operation insures a DRY JOB at all times.
For KNOW-HOW • ENGINEERING • SUPERVISION • EQUIPMENT • to keep jobs DRY
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(Continued from page 61)

for investigations and planning and the designing of construction installations from 1914 to 1917, and from 1918 to 1921 was the engineer in charge of the construction of Lockington Dam. As a staff engineer of the Tennessee Valley Authority he had charge of the construction of Norris Dam, continuing after its completion as chief designing engineer and as adviser in design for TVA. In 1942 he went to Peru, and has been engineer director of the Central Hidroelectrica del Canon del Pato.

City Engineer W. E. Sheddan of Jacksonville, Fla., has been assigned to special duties in connection with the $42,000,000 express highway project. **Walter G. Daniel** will act temporarily as city engineer.

W. Earle Andrews, Ernest J. Clark and **Frank J. Buckley** announce that Andrews & Clark has been changed to Andrews, Clark & Buckley, consulting engineers, 305 E. 63d St., New York 21, N. Y.

(Continued on page 64)

Resident engineer of a new office at Forman Field, Fla., to supervise construction on the Central and Southern Florida flood control project is Capt. John J. Upchurch III, Corps of Engineers. The office is under the general supervision of the Miami Beach sub office of which Geo. R. Caslow is engineer in charge. Captain Upchurch is a 1943 West Point graduate. After overseas duty, he took a M.S. in C.E. at Harvard in 1948 and since has been assistant in the Corps of Engineer suboffice in Clewiston, Fla. Initial work in his new assignment will be a levee beginning about 15 miles west of Fort Lauderdale and extending 6 miles northeasterly.

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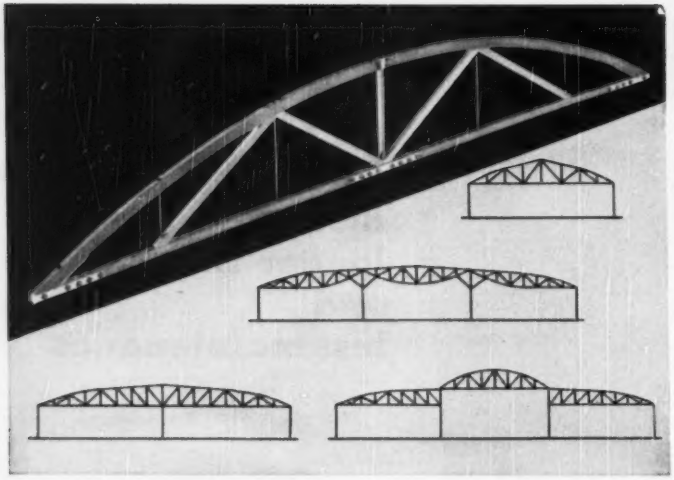

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Attractive in appearance, versatile in application, and requiring little or no maintenance, the Tim-Truss fills the need for a stable, fire-resistive bowstring truss.

MONOCHORD CONSTRUCTION

Chords are glued laminated of structural quality material, thoroughly kiln dried. They will not shrink, check, twist or warp, and camber is maintained without adjustments. Length of chords is restricted only by limitations of shipping and handling, with chord splices either eliminated or greatly reduced in number.

The Tim-Truss is highly fire resistive, due to the dimensions of the one-piece chords. They qualify as heavy timber construction, with resulting favorable fire insurance rates.

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(Continued from page 62)

J. W. Travis, Nashville, Tenn., has been named chief engineer of the Southern Bell Telephone Co., in Alabama, at Birmingham.

Ralph S. Howard, who retired from the Corps of Engineers in 1947 after 44 years service, will open an office in Savannah, Ga., as a specialist in engineering for improvement projects.

W. E. Johnson has been promoted from assistant manager to manager of the Hanford Works Design and Construction Divisions of General Electric's Nucleonics Department at Richland, Wash. He succeeds **F. R. Creedon**, whose 26 months contract with the company has expired. Johnson joined General Electric in 1930 after having been graduated from Oregon State College. He was manager of engineering in the General Electric air conditioning department at Bloomfield, N. J., before going to Hanford Works in 1948 as engineer of the reactor section of the design division.

Charles H. Wagner of the Seattle District Corps of Engineers, has been appointed resident engineer at Chief Joseph Dam on the Columbia River in eastern Washington. A 1925 graduate of the University of Pittsburgh he was resident engineer on the Tiger Dam in West Virginia in 1934. He later worked on the Mahoning and Loyalhannah dams near Pittsburgh, the Youghiogheney Dam near Cumberland, Md., and the Dale Hollow-Center Hill dams near Cookville, Tenn. Assigned to the Engineer Corps, he was commissioned a captain and worked on the Alcan Highway and Canol Project and as post engineer of the Edmonton Air Base. In 1946 he joined the Corps of Engineers at Nashville, and later was resident engineer at the Harlan County Dam, Neb.

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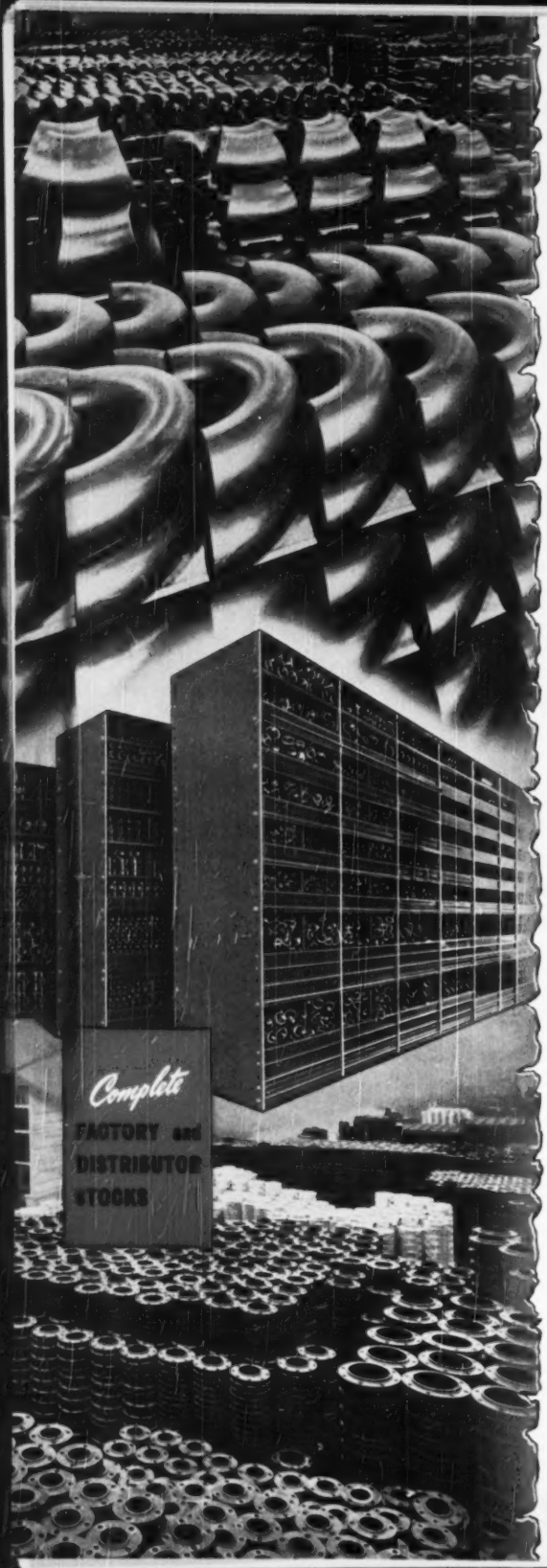

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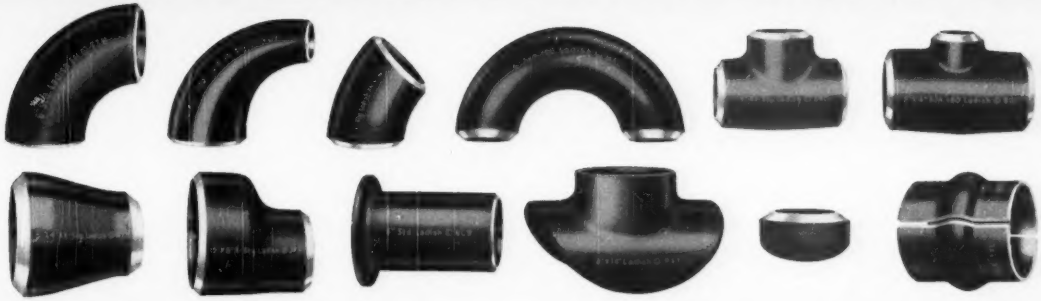

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Whatever your fitting requirements . . . you can rely on the Ladish line for an unrestricted selection of Seamless Welding Fittings, Forged Steel Flanges and Forged Steel Fittings.

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Adequate stocks in strategically located distributor warehouses . . . supplemented by extensive factory inventories of every type . . . give you double assurance of prompt service on every Ladish order. And, by standardizing on Ladish you know that every fitting is made to the unsurpassed standards of Controlled Quality for complete dependability.

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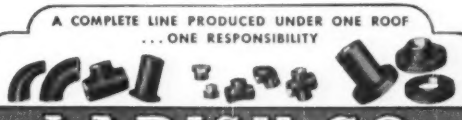

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Here's a new aid to faster drilling, the G-150 *Light* Wagon Drill. With it and the new 59-pound CP Sinker, or the 3-inch CP Drifter, you can increase footage in benching or toe-holing up to 100% over hand-held methods. 6-foot steel changes materially increase actual throttle time.

A new, compact, cone gear drive—exclusive with CP—has 66% more tooth contact than conventional worm gearing. This design insures longer life because of greater load carrying capacity.

Holes are drilled easily at any angle. Positive, uniform feeding pressure insures faster unit drilling speed with lower air consumption per foot drilled. Powered steel puller avoids wrenching of steel and loss of holes in bad drilling ground.

Write for Bulletin SP-3010 giving specifications in detail.

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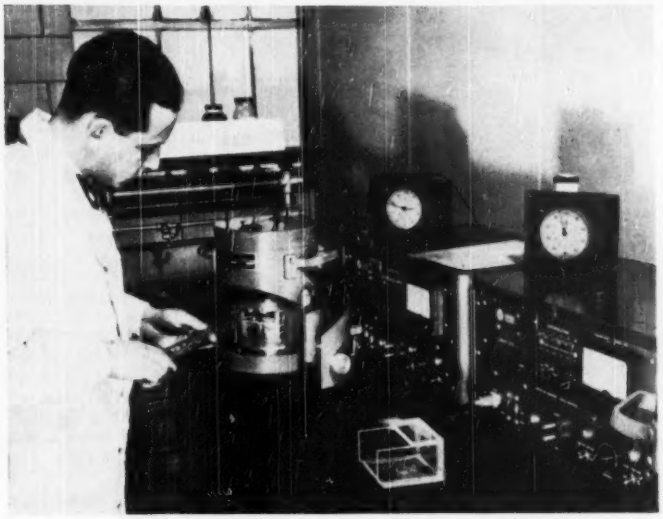
EDUCATION and RESEARCH



ATOMIC WASTE RESEARCH—Werner N. Grune, research assistant, New York University College of Engineering, removes a radioactive specimen from its lead container with a set of tongs in Carpenter Sanitary Engineering Laboratory at University Heights, New York City. The College of Engineering, though its Research Division, is actively engaged in a project sponsored by the Atomic Energy Commission which seeks to find solutions for problems concerned with atomic energy wastes.

International Relations

At the Massachusetts Institute of Technology an international relations course is one of four humanities electives which seniors may choose to take. The Department of the Army has placed it among the required subjects for seniors in ROTC.

The course does not aim at producing experts in any one phase of international relations, but to give a general survey of the basic aspects of present world politics, although not a course in current events.

Some of the subjects listed in the syllabus of the course are: The Influence of Geographic Factors; Human Factors; Power Politics; National Policy; American Ideology; Soviet Policy; the Search for Security; Economic Aid to Allies; the Atomic Bomb; World Organizations; the United Nations; Development of Backward Areas.

As to whether the engineering students are sincerely interested in foreign relations, Prof. James E. Boyce of the Department of Economics and Social Service says: "I think the answer is definitely 'Yes', although some of this interest undoubtedly comes from the fact that many of the students in recent years have been veterans of the war. I would estimate that at least half of the students selected the course entirely from their interest in the subject. This is the most favored of the humanities electives. There are about 470 enrolled out of a total of 1100 seniors."

Resources Conservation

Yale University, in cooperation with the new Conservation Foundation, is establishing a graduate program of research and instruction in conservation of natural resources, beginning next September. One of the leading educators and authorities in the field, Paul B. Sears, will be in charge with the rank of professor of conservation, a newly-created post. He is now at Oberlin College, but will join the Yale faculty next summer.

The course will be for graduate students only, although it is hoped that a similar program for undergraduates will be established later. The graduate course will require two years of study and research, and will lead to the degree of Master of Science in Conservation, the first time such a degree is to be awarded in this country.

The program will be administered by the Division of Sciences and the Graduate School. A considerable part of the Yale program will be centered upon study and research in the field. The Connecticut River Valley, which has been described as an outstanding example of both good and bad conservation practices, will serve as the outdoor "classroom" for the students.

Port Engineering

The first graduate course in port, harbor and shore engineering to be given in the south is now offered at the Georgia Institute of Technology, according to Ray L. Sweigert, dean of the graduate division.

The course is taught by George F. Sowers, associate professor of civil engineering, who worked with his father, Col. G. B. Sowers of Cleveland, Ohio, in the design of protective works for the south shore of Lake Erie. In addition, he has carried out model studies of wave action.

Subjects to be covered include a study of commodities, cargo vessels, port planning, wharf superstructive design, storage areas, wharf substructures, special port structures, harbor design, shore protection, small craft harbors, and tides, winds, and waves.

The course was instituted because of the importance of scientific port and harbor planning in the industrial development of the south. In addition, Prof. Sowers believes that the lessons learned in his work at Lake Erie can be applied to check the critical shore and beach erosion along the coasts of Georgia and its neighboring states.

Educational Notes

Many graduates—A new edition of the engineering alumni directory of the college of engineering, University of Wisconsin, shows that these are more than 8,000 graduates of the college scattered in every state of the union and in 31 foreign countries.

Highway engineering—Beginning with the second semester this month, the department of engineering of the University of Virginia has inaugurated graduate courses in highway engineering leading to the degree of Master of Civil Engineering. The graduate courses cover advanced highway engineering, highway design, testing of highway materials, design of concrete and bituminous mixtures, soil mechanics, and interpretation of aerial photographs.

Structural Concrete—The New Jersey State Highway Department is sponsoring structural concrete research projects in cooperation with Columbia University. Morris Goodkind, bridge engineer, will be the chief representative of the department in planning and carrying out this investigation on "deformational behavior of concrete."

NAYLOR *Light-Weight* PIPE

Can Help You in a Dozen Ways

Contractors have found Naylor Pipe the practical answer to a dozen or more assignments on construction jobs.

This light-weight pipe with the extra strength and safety to handle "heavy" jobs is ideal for the following applications:

High and low pressure air lines. High and low pressure water lines. Ventilating lines. Cement pumping pipe. Dredging pipe. Hydraulic sluicing pipe. Sand and gravel conveying lines. Irrigation pipe. Well-point systems. Composite piling. Exhaust and intake piping.

It will pay you to check into Naylor's advantages on your jobs. Pipe sizes range from 4" to 30" in diameter and thicknesses from 14 to 8 gauge. Write for Catalog No. 44.

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ELECTIONS AND ACTIVITIES

Lake Erie chapter, Ohio Society of Professional Engineers, embracing five northern Ohio counties, has elected Harold E. Childers, Fremont, chairman; F. L. Page, Port Clinton, vice-chairman; and Carl S. Schepflin, Fremont, secretary-treasurer.

Edward T. Tull, superintendent of the municipal water department at Rockingham, has been elected chairman of the North Carolina Section of the American Water Works Association. He succeeds R. W. Luther of Elizabeth City, W. W. Atkins of Asheboro was elected vice-chairman and E. C. Hubbard, of Raleigh, was re-elected secretary-treasurer.

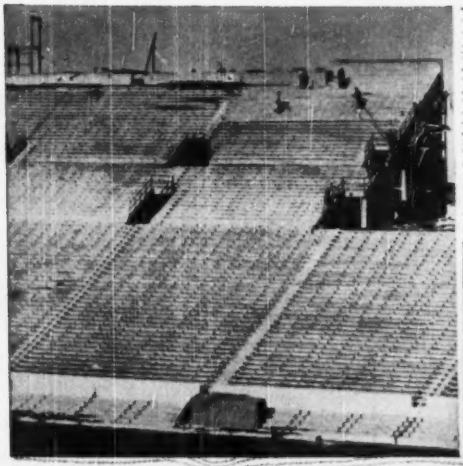
C. N. Lohrey has been elected president of the Dayton chapter, Ohio Society of Professional Engineers, succeeding M. C. Olsen, who becomes a member of the board of directors. L. A. Critchfield was elected vice-president; R. I. Menninger, secretary; William H. Brabson, St., treas., and F. H. Behrens and R. B. Prinz, directors.

R. J. Erb, Fort Wayne, has been elected president of the Indiana Society of Professional Engineers for 1950, succeeding F. B. Mendenhall, Indianapolis.

N. A. Dickerson, Jr., Monroe, N. C., has been elected president of the Carolinas Branch of the Associated General Contractors of America. Hal S. Crain of Durham, N. C., was elected vice-president, and C. P. Street of Charlotte, N. C., was re-elected treasurer. Robert Patton of Charlotte continues as executive secretary. Directors are: M. R. Rae of Charlotte, G. E. Moore of Greenwood, S. C., T. R. McMekin of Cheraw, S. C., W. W. King, Jr., of Greensboro, N. C.; for two-year terms, and C. N. Whilden of Charlotte, L. G. McKenzie of Spartanburg, S. C., E. G. Skinner of Charlestown, S. C., and R. E. Fulmer of Columbus, S. C., for one-year terms.

C. W. Lang, part owner of J. B. Matz Specialty Contractors, has been elected president of the Phoenix, Ariz., Chapter, American Association of Engineers. Other officers are Hanen Williams, Williams Engineering Co., vice-president; Daniel Wier, civil engineer

(*Continued on page 73*)



PENTA-PROTECTED SEATS in new addition to Memorial Stadium, University of Missouri, Columbia, Mo.

MEMORIAL STADIUM SEATS filled to capacity, for a big game. Properly formulated, Monsanto Penta treated wood is clean, paintable.

MONSANTO PENTAchlorophenol makes stadium seats last longer

When the University of Missouri added 5,000 seats to Memorial Stadium last fall, Monsanto Penta was applied to *preserve* the wood. It takes an *effective* preservative to protect stadium seats because they take a terrific beating from sun, rain, snow and ice.

Monsanto Penta delivers the needed protection against termites and wood-boring insects . . . against fungus attack and decay . . . against weather. Treated with properly-formulated Monsanto Penta, wood is clean . . . paintable . . . water-repellent. Penta is the *only* wood preservative that delivers *all these qualities.*

Penta, always chemically uniform, is a *long-lasting* preservative. It does not weather away nor evaporate. Actually, tests indicate the longer penta is in wood, the deeper it penetrates . . . the more effective it becomes

You may never build a football stadium, but the qualities that make Monsanto Penta preferred in that application will deliver *superior protection* wherever you use wood. For technical information and names of suppliers of treated wood or penta solutions, mail the coupon, contact the nearest Monsanto Sales Office or write: MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1759-A South Second Street, St. Louis 4, Missouri.

DISTRICT SALES OFFICES: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto (Canada) Ltd., Montreal.

MONSANTO
CHEMICALS — PLASTICS

MONSANTO CHEMICAL COMPANY
Organic Chemicals Division
1759-A South Second Street, St. Louis 4, Missouri
Please send, without cost or obligation, information checked: ....Technical data on penta; ....Names of formulators; ....Source of ready-treated wood.

Name.....*Title*.....
Company.....
Street.....
City.....*Zone*....*State*.....

SERVING INDUSTRY . . . WHICH SERVES MANKIND

The kind of road people like to ride on — Summer or Winter

When hot Summer suns burn down, motorists appreciate the smooth non-glare surface of roads built with Tarvia* road tar. These roads are always pleasant to look at—pleasant to drive on. They harmonize with any landscape.

When Winter storms come, roads built with Tarvia* road tar are easier to keep open. That's because their black surface absorbs heat and you can use calcium chloride or sodium chloride on them without damage.

Tires get a better grip on Tarvia* road tar pavement. The slightly granular, "tractionized" surface gives them a firm tread-hold.

Barrett's 46 years of experience in road building, maintenance and repair is yours for the asking. *Ask the Barrett field man.*

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Barrett* Tarvia* ROAD TAR

*Reg. U. S. Pat. Off.

(Continued from page 70)

with F. N. Holmquist, secretary-treasurer; and Frank P. Hall, with Lescher and Mahoney, board member.

L. I. Lassiter has been elected president of the Wilmington, N. C., Engineers Club. Other officers: M. W. Clark, vice-president; Robert F. Coleman, Jr., secretary-treasurer; and O. G. Bain and R. T. Davis, directors.

MAJOR MEETINGS

National Association of Home Builders, Congress and Stevens Hotels, Chicago, Ill., Feb. 19-23.

American Concrete Institute, annual convention, Edgewater Beach Hotel, Chicago, Ill., Feb. 20-22.

National Council for Stream Improvement, annual meeting, Waldorf Astoria Hotel, N. Y. City, Feb. 20-22.

Minnesota Federation of Engineering Societies, exposition, Minneapolis Armory, Minneapolis, Minn., Feb. 21-23.

Ontario Road Builders' Association, Royal York Hotel, Toronto, Ont., Feb. 22.

American Concrete Pipe Association, annual convention, Fairmont Hotel, San Francisco, Calif., Feb. 22-25.

Associated General Contractors of America, national convention, San Francisco, Calif., Feb. 27-March 3.

American Road Builders Association, annual meeting, Netherland Plaza Hotel, Cincinnati, Ohio, March 6-9.

Mississippi Valley Conference of State Highway Department, Edgewater Beach Hotel, Chicago, Ill., March 9-11.

American Railway Engineering Association, Palmer House, Chicago, Ill., March 14-16.

Concrete Reinforcing Steel Institute, annual meeting, The Shamrock Hotel, Houston, Tex., March 20-25.

New Jersey Sewage Works Association, annual convention, Hotel Stacy-Trent, Trenton, N. J., March 22-24.

Highway Engineering Conference, University of Utah, Salt Lake City, March 29-31.

Canadian Section, American Water Works Association, General Brock Hotel, Niagara Falls, Ont., April 3-5.

New Jersey Society of Professional Engineers, Essex House, Newark, N. J., April 14-15.

Highway Transportation Congress, Mayflower Hotel, Washington, D. C., April 25-27.

American Society of Civil Engineers, spring meeting, Los Angeles, Calif., April 26-29.

Third Inter-American Congress of Municipalities, New Orleans, La., May 2-5.

N. Y. State Society of Professional Engineers, Hotel Statler, New York City, May 4-6.

American Society of Civil Engineers, Pacific Northwest Conference, Winthrop Hotel, Tacoma, Wash., May 5-6.

U. S. Conference of Mayors, Waldorf-Astoria Hotel, New York City, May 11-13.

Florida Highway Conference, University of Florida, Gainesville, Fla., May 11-23.

CONCRETE Costs You Less

From Estimate To Finished Job When Placed With

Mall VIBRATORS

Contractors who come up with job-winning bids and finish jobs on schedule with a profit, use Mall "Hi-Kik" Concrete Vibrators.

They place a stiffer mix with aggregate up to 8-inches in diameter and enable the contractor to control placing from the estimate to the finished work. Gasoline engine models also operate attachments for *Power Grouting, Pumping, Wire Brushing, Disc Sanding, and Drilling.*

The gasoline engine unit illustrated was recently increased from 3 H.P. to 5 H.P. and the 1½ H.P. unit was stepped up to 2 H.P. at no increase in cost. 3 H.P. Geared Head, 1½ H.P. Short-Coupled Electric and Pneumatic Models also available.

5 H.P. Mall "Hi-Kik" Concrete Vibrator available with or without pneumatic wheel barrow mounting.

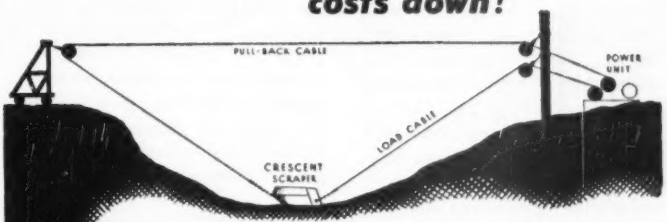
32 factory owned service stations from Coast to Coast give quick, dependable repair service. Over 1000 Mall Portable Gasoline Engine, Electric and Pneumatic Power Tools for a million jobs. A Dealer in every town can supply you.

See your Mall Equipment Dealer TODAY and write Contractors' Equipment Division for new Free Catalog "Mall Vibrators".

MALL TOOL COMPANY, 7730 South Chicago Ave., Chicago 19, Ill.

Established 1921

output up . . . costs down!



with a SAUERMAN SCRAPER

Picture shows a Sauerman Crescent scraper bucket delivering a 5-ton load of gravel to crusher at large screening plant. Digging into a hill over 400 ft. from crusher, scraper makes twenty-five round trips or more every hour, all day long, bringing in a heaping load every trip.

Continuously, steadily, the powerful Sauerman Crescent scoop goes back and forth—making more hauls per day—delivering more yardage **and doing it for less cost.** Ground conditions mean nothing to Sauerman Power Drag Scrapers—where digging is toughest, Sauerman is strongest.

Payroll savings too. Only one man is needed to control the entire operation of the machine and handle the small maintenance. Extreme simplicity of design and construction insure the long life and dependable service of this equipment. Fuel requirements; either Diesel, electric or gasoline, are very small on the basis of yardage handled.

FIND OUT MORE ABOUT THIS REMARKABLE MACHINE WRITE TODAY FOR LARGE ILLUSTRATED CATALOG.

SAUERMAN BROS. Inc.

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Smooth Action and Ruggedness that PAY DIVIDENDS in Any Doorway

KINNEAR STEEL ROLLING DOORS

Above installation shows how hood of Kinnear Rolling Door can be mounted on building exterior where desired. May also be concealed above lintel or mounted on inside wall.

You save in at least three ways when you equip service openings with Kinnear Steel Rolling Doors. First, their smooth, easy, coiling upward action gives you full use of all surrounding floor and wall space. Materials of any kind can be stored within an inch or two of the doors, inside or out, without impeding their operation. They open completely out of the way of traffic, coiling compactly out of wind's reach.

Second, Kinnear's neat, strong curtain of interlocking steel slats assures long, dependable, low-maintenance service. Upkeep costs are negligible.

Third, the all-metal construction of Kinnear Rolling Doors gives you extra protection against fire, intruders, wind and storm damage, and other hazards.

Years of actual use in hundreds of buildings prove the economy and high efficiency of Kinnear Rolling Doors. Motor or manual control. Easily installed in old or new buildings. Any size. Write for details today!

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SAVING WAYS IN DOORWAYS KINNEAR ROLLING DOORS

OBITUARY

Francis T. McAvoy, 61 Jamaica Plain, Mass., construction engineer, Massachusetts Department of Public Works, died Jan. 16. He was graduated from Massachusetts Institute of Technology as a civil engineer. He was in the Department of Public Works for 37 years.

F. W. Johnson, 58, formerly chief engineer for C. R. Meyer & Sons Co., Oshkosh, Wis., general contractors died recently. He was a graduate of the University of Minnesota.

George H. Finneran, 78, retired superintendent of the Boston, Mass. water department, died Jan. 23 in Florida. He was a former president of the New England Water Works Association. He was a writer on water works, and helped design the fire hydrants used exclusively in Boston.

Frederick W. Cohen, 79, civil engineer, died in New York City, Jan. 26. A graduate of Rensselaer Polytechnic Institute, Mr. Cohen formerly was with the Pennsylvania Steel Co. at Harrisburg, Pa., and later the Metal and Thermit Co., Jersey City, N. J.

Alexander W. Gregory, 65, senior assistant engineer for the Canadian public works department in the Halifax, N. S., district, died at Halifax, Jan. 22. He received his technical education at the University of New Brunswick, Fredericton, N. B., and Royal Military College, Kingston, Ont. He was an officer in the Canadian army during World War 1. He had been an engineer in the Canadian public works department for 40 years, and worked in various parts of Canada.

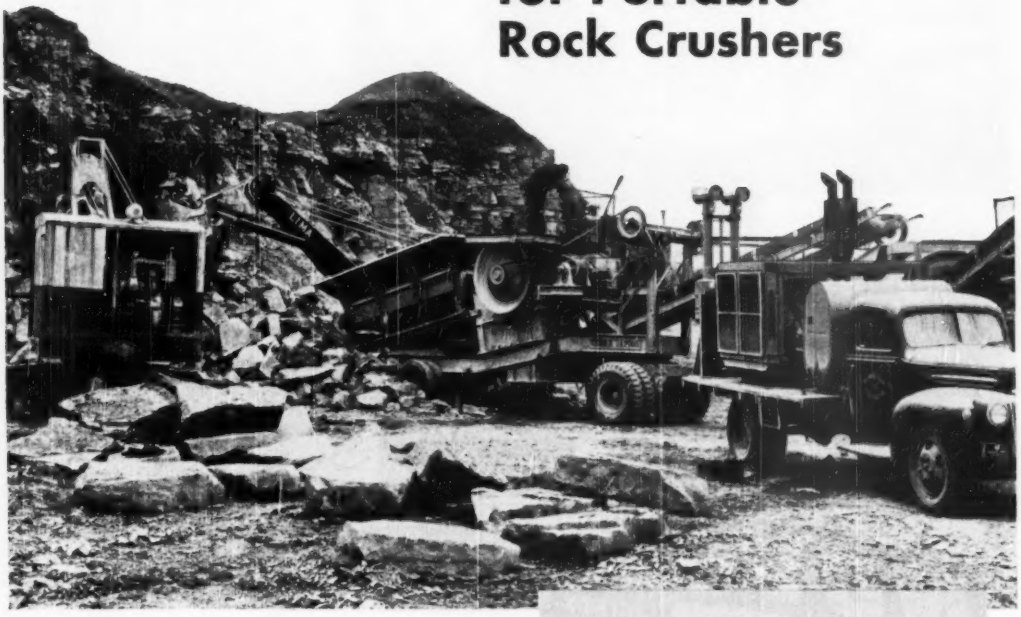
Edward W. Foley, 74, president of the E. W. Foley Associates Co. Inc., of Brooklyn, N. Y., died Jan. 26. In 1912 he organized the E. W. Foley Contracting Co., which did the original construction work on the Cape Cod canal. His company did much construction work for the New York World's Fair, including the building of the Aquacade, and his latest company was the contractor for the Brooklyn approach to the Brooklyn-Battery Tunnel.

Frederic N. Bushnell, 82, power engineer, who died at Brookline, Mass., Jan. 24, joined Stone & Webster Engineering Corp. in 1906, rising to become vice-chairman of the board of

(Continued on page 76)

Best Power there is

for Portable Rock Crushers



A truck-mounted GM Diesel Twin Six drives the 40" hammermill, a single six powers the 20" x 30" jaw crusher on this Cedar Rapids portable unit, one of two GM Diesel-powered plants operated by B. L. Anderson in eastern Iowa. Each plant averages 130 tons of ¾" road rock per hour. Operating 18 GM Diesel engines in various pieces of equipment, Anderson has lost only one day's operation in three years due to engine failure.

THAT'S what hundreds of operators like B. L. Anderson of Cedar Rapids, Iowa, are saying about General Motors Series 71 Diesels—and with good reasons.

GM Diesels pack lots of rugged power, yet their sensible size and weight make them easy to move and simple to set up. Efficient factory-built multiple engine units are available. Virtually every power need can be filled.

ALL GM Diesels are 2-cycle, with power at every piston downstroke. They're smooth-operating—easy to start on their own fuel—and quick to respond when picking up a load.

These qualities are important in any rock-crushing operation. So it's certainly worth while to get full information on these hard-working, easy-to-maintain 2-cycle Diesels. Drop us a line and we'll see that you get it.

DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES... Up to 200 H. P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS... Up to 800 H. P.

GENERAL MOTORS

DIESEL BRAWN WITHOUT THE BULK

GM GENERAL MOTORS DIESEL POWER

OPERATING machinery for bridge installations, dams, locks and gates should be dependable and positive in action above all else. Earle "oversize" construction and automatic lubrication minimize wear and provide year after year service with little or no maintenance. Backed by years of experience, Earle produces operating machinery that is known as "trouble-free" by bridge and water works engineers who specify it.

Our specialists will gladly work with you to solve your gear or machinery problems—get in touch with us now. If you want further information first, send for our NEW catalog containing Earle operating machinery. The EARLE GEAR AND MACHINE CO., Main Office: 4717 Stenton Ave., Phila. 44, Pa.;

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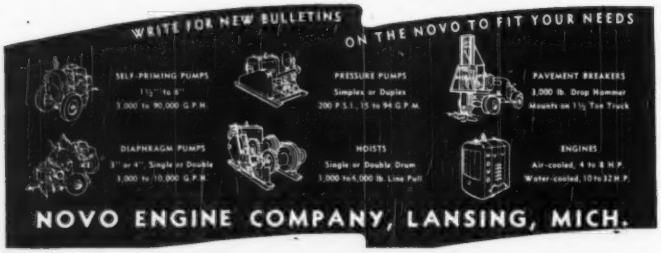
RUGGED -- DEPENDABLE
ENGINES
FOR HEAVY-DUTY LOADS

- FUELS — Gasoline; Kerosene; Gas-Gasoline
- ROLLER BEARINGS — On Crankshaft and Camshaft
- HEAVY FLYWHEEL — Smooths Varying Loads
- EASY SERVICING — 80% Interchangeability of Parts

This 2 cylinder water-cooled engine (Model CWR-66) develops 10 to 15 H.P. at speeds of 1200 to 2200 R.P.M. Other models available: Air-cooled, 4 to 7 or 5 to 8 H.P.; Water-cooled, 10 to 15 or 22 to 32 H.P. Let us know your specific needs.

WRITE FOR NEW BULLETINS ON THE NOVO TO FIT YOUR NEEDS



NOVO ENGINE COMPANY, LANSING, MICH.

(Continued from page 74)

directors. He retired in 1941 from active service after 40 years as a leading engineer in the development of power stations.

Solon M. Prince, 87, dean of West Virginia's professional engineers, died Jan. 17, in Morgantown. He was the builder of numerous bridges in Virginia, West Virginia and Maryland. In 1908 he built the bridge across the Monongahela River at Morgantown. He was a graduate of Virginia Polytechnic Institute.

A. Lyle Fleshman, 62, secretary of the State Road Commission of West Virginia, died Jan. 22 at South Charleston, W. Va. He had been associated with the road commission since 1934.

Henry A. Husing, 47, senior highway engineer for Sacramento County, Calif., died recently. He had been with the county engineer's office for the last 17 years.

John T. Stevens, 80-year old former chairman of the South Carolina Highway Commission, died at his home in Kershaw, S. C., Jan. 19. He was known as the father of the safety treatment for highway shoulders, which was first adopted in South Carolina under his direction and lated widely used.

Charles W. Everett, 85, retired civil engineer for the Republic Steel Corporation, died Jan. 17, at Miami, Fla.

Lucius T. Berthe, 73, civil and flood control engineer, for 40 years a resident of Charleston, Mo., died Jan. 5. He received his technical education at Drury College and Purdue University. He was an authority in his field and had done a great deal of successful work in drainage, flood control, sewers and pavements throughout his section of the state.

Bert Brooks, 60, a partner of the contracting firm of Dahlgren and Brooks, Dallas, Tex. and Oklahoma City, died at Dallas, Jan. 22. He was a pipeline and highway contractor, he and Dahlgren also built the Navy airfield at Norman, Okla., and the airports at Altus, Okla., and Joplin, Mo.

Fred Meyer, 63, Seymour, Ind., former Jackson County highway chief, died Jan. 9.

William H. Smith, 78, retired London, Ohio, contractor, formerly with the Madison County engineer's office, died Jan. 11.

(Continued on page 78)

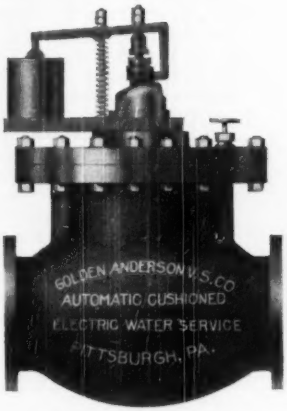
ON YOUR SERVICE LINES . . .

GA

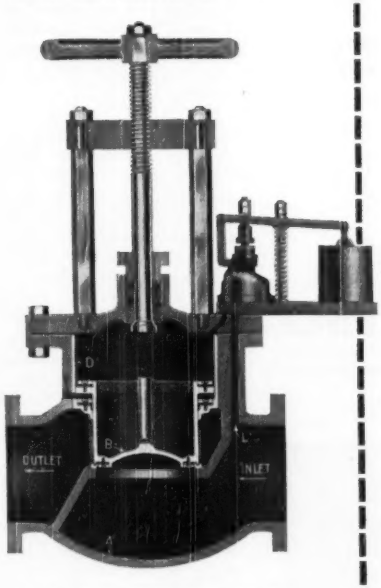
Golden-Anderson

ELECTRIC AND MANUAL

WATER SERVICE Valves



G-A Electric Water Service Valve is furnished with renewable cups and seat washer to eliminate any metal to metal contacts. Operation is by solenoid on either AC or DC circuit for any voltage. Also furnished in Angle Pattern.



G-A Electric and Manual Water Service Valve may be operated either by solenoid on AC or DC circuit or by a manual handwheel. Also furnished in Angle Pattern.

Ideally suited for any spray service or for remote electrical control, these Golden-Anderson Valves give you the dependable flow control you need on your service lines.

The Electric and Manual Water Service Valve may be operated either by electrical control or may be closed by the manual handwheel. The "combination" design of the yoke top permits the valve to be manually opened and held open by the stem, like an ordinary stop valve.

Because of perfect air and water cushioning, there is no water hammer or shock in the automatic operation. Both the electric and the manual-electric type valve are arranged to operate either when the solenoid is opened or closed. AC or DC current may be used. These highest quality valves are available in cast iron, semi-steel and cast steel with non-corrosive trim of bronze, Gavalloy or stainless steel. Write for additional technical information.

GOLDEN-ANDERSON *Valve*

SPECIALTY COMPANY

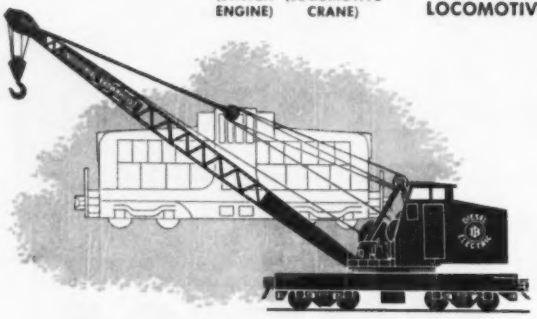
KEENAN BUILDING, PITTSBURGH 22, PA.

LIFE AND PROPERTY PROTECTION
VALVES SINCE 1905

NEW ARITHMETIC FOR COST MINDED EXECUTIVES:

1+1=1 BROWNHOIST

(SWITCH ENGINE) (LOCOMOTIVE CRANE) DIESEL ELECTRIC LOCOMOTIVE-CRANE



Two big pieces of material handling equipment in one — that's what you get in the Brownhoist Diesel Electric Locomotive-Crane — a heavy-duty switch engine, and a powerful locomotive crane of 30 tons capacity, and up.

New clear-vision boom design allows operator an unobstructed view through the lower end of the boom, an area that is a blind spot on many cranes.

And the Monitor-type cab assures 360° visibility from the operator's position. Safety engineered design gives 14" clearance between revolving upper work and car body.

Write today for more complete information.

BROWNHOIST BUILDS BETTER CRANES

INDUSTRIAL BROWNHOIST CORPORATION • BAY CITY, MICHIGAN

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CORE BORINGS for Foundations, Dams, Bridges and all Heavy Structures

GROUT HOLES

Tinney Drilling Co.
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"GUNITE"

NEW CONSTRUCTION AND REPAIRS

- Prestressed Tanks
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- Linings and Repairs to Reservoirs, Stacks, Bunkers, Sewers, Tanks, Tunnels, Pen Stocks
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PRESSURE CONCRETE CO.

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193 Emmett Street Newark 5, New Jersey — So. Court Street Florence, Alabama — 33 N. LaSalle St., Chicago 2, Ill.

(Continued from page 76)

Clarence W. Hubbell, 79, the civil engineer who designed and reconstructed the sewer system of Detroit, Mich., was killed by an automobile near Detroit on Feb. 1. Mr. Hubbell received his civil engineering degree at the University of Michigan in 1893, and devoted his life to the sanitation and water supply problems of many American cities and in the Philippines. In 1387 he joined the Detroit water department and from 1893 to 1898 he was engineer in charge of the department. He then went to the Philippines, when he became engineer of water supply and chief engineer of public works in Manila. In 1915 he became city engineer of Detroit and from 1925 to 1937 he was a member of the board of consulting engineers on the Detroit sewage collection and treatment project. He also served on the engineering review board of the sanitary district of Chicago.

Col. William C. Gardenhire, 82, USA, ret., who was in charge of the construction of March Field, Calif., two decades ago, and who was stationed in Washington, D. C., in the early 1920's, died Jan. 25 in Riverside, Calif. He had been in the construction division of the Quartermaster Corps. He was active in the Spanish-American War, the Philippine insurrection, the Mexican border affair, and World War 1.

Maj. Courtney I. Stone, 41, civil engineer and former major in the Army Corps of Engineers, was killed Jan. 23 in a traffic accident near Washington, D. C. He was a C. E. graduate of the University of Pennsylvania. He served in the Mediterranean theater in the war.

L. C. Grede, 63, of Fayetteville, N. C., a senior resident engineer with the North Carolina Highway Department, died Jan. 30 in an automobile accident. He had been with the department since 1921 and since 1931 had been resident engineer at Fayetteville and Elizabethtown.

Marshall R. Rea, 50, Charlotte, N. C., paving contractor and president of the Rea Construction Co. and the Taylor Construction Co., died Jan. 28. He was one of the largest paving contractors in the Carolinas, and during the war was engaged in road construction in the Pacific Theater.

George W. Whipple, 79, former construction engineer for National Distiller for 35 years, died at Louisville, Ky., Jan. 6.

There's a Reason for

- **smoother spooling**
- **easier handling**
- **longer life**

When you use...

-Preformed-

"HERCULES"

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RED-STRAND

WIRE ROPE

... In fact, there are many—*and definite*—reasons why you can depend on Preformed "HERCULES" (Red-Strand) Wire Rope for trouble-free and economical service... First, there is the "Leschen Standard of Quality" which applies to all materials used, and which is rigidly maintained by exacting tests ... Then there are manufacturing facilities ... Strict Supervision... Experience. To this, add the advantages of the Preforming process, and the result is a wire rope that is tops in performance.

Being made in Round and Flattened Strand constructions, there is a correct type for every wire rope requirement in every industry.

We Invite Your Inquiries

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ESTABLISHED 1857

New York 6 · Chicago 7 · Birmingham 6 · Houston 3 · Denver 2 · Los Angeles 21 · San Francisco 7 · Portland 9 · Seattle 4

Above: general view of pipe casting yard. Below: pipe being unloaded at job site. Left: lowering six-ft. section of 120-in. concrete pipe sewer into a 30-ft. open trench.

Midland, Mich., solves storm drainage problem with 120-in. *CONCRETE PIPE*

DURING RAINY seasons Midland, Mich., suffered from acute surface flooding conditions. To end this nuisance residents voted a bond issue for the installation of an extensive storm sewer system.

This storm sewer required 5,080 ft. of 120-in. concrete pipe for the main outfall section and 30,853 ft. of 12-in. to 84-in. concrete pipe for the storm water collecting mains. The 120-in. pipe was cast in six-foot sections each weighing more than 14 tons. This giant pipe was placed in open cuts often 30 feet deep.

Use of large-diameter concrete pipe like this is economical because it is practical to erect a temporary pipe-making plant near the project. Such job-site production: (1) Reduces transportation and handling costs. (2) Eliminates construction shutdowns that result when pipe shipments are delayed in transit.

Like Midland, hundreds of other cities are using concrete pipe for sewers of all kinds because:

- Concrete pipe sewer lines have the strength to resist severe impact and to sustain heavy overburdens to which they may be subjected.
- Concrete pipe's smooth interior finish resists abrasion and provides maximum hydraulic capacity year after year.
- Concrete pipe is moderate in first cost, has the durability to render long years of service with little upkeep expense. These advantages result in true ***low-annual-cost*** sewer service.

PORTLAND CEMENT ASSOCIATION

33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete, through scientific research and engineering field work

New York's Downsville dam and tunnel bids

The Downsville Dam and appurtenant works, bids taken Jan. 17, 1950 on contract 401, for the New York Board of Water Supply will back up water for the East Delaware Tunnel. It is in Town of Colchester, Delaware County, N. Y. Its useable storage capacity will be 150 billion gallons.

Completion time is 54 months.

Skilled wages range from $1.50 to $3.00 on general construction in free air and from $1.90 for miners and drill runners to $2.35 for blasters in shaft and tunnel in free air. Surface laborers get $1.40, shaft and tunnel laborers $1.45. Work is on an 8-hr., 5-day week schedule.

Bidders include:

(1) Carlo Bianchi and Co., Inc., Framingham, Mass.; Central Construction Co., Lawrence; Monroe-Langstroth, Inc., No. Attleborough; G. L. Rugo & Sons, Inc., Boston $17,902,275
(2) Savin Constr. Corp., East Hartford, Conn. $19,209,028
(3) Morrison Knudsen Co., Inc., Boise, Idaho & New York; Peter Kiewit Sons' Co., Omaha; Bates and Rogers Constr. Corp., Chicago; Macco Corp., Paramount, Calif. $20,551,300
(4) S. A. Healy Co., White Plains, N. Y. $21,298,500

Low bid unit prices compared by years

	Rolled Embank A	Rolled Embank B	Rock Embank	Refil Embank	Excav. Ear.	Excav. Rock	Conc. Masonry Op. Ct	Conc. Masonry Tunnel
Downsville (LB) Jan. 1950	$1.05	$1.05	$1.05	$1.00	$3.50	$3.50	$15.50	$20.00
Neversink (C) May 1948	2.05	1.90	1.90	.20	.50	5.00	22.00	30.00
Merriman (C) 1946	1.04	.94	.60	.45	.95	3.00	20.00	25.00
Merriman (Rej Bds) 1945		0.93	.55	.50	.75	4.00	20.00	39.00
Lackawack (C) 1939		0.48	.45	.10	.35	2.20	14.50	8.00

		Downsville Dam — Unit prices 1/17/50				Neversink Contract
Items	Quantity	(1)	(2)	(3)	(4)	May, 1948
Borings ..... lf	18,000	$7.00	$5.00	$6.00	$5.50	7.00
Steam control ..... ls	.....	25,000.00	135,108.00	65,000.00	100,000.00	64,000.00
Removal of soil ..... cy	9,000	2.00	.68	2.00	.50	0.50
Earth excavation ..... cy	175,000	3.50	1.68	1.00	.60	0.50
Rock excav open cut ..... cy	560,000	3.50	6.00	3.00	4.00	5.00
Prepar rock surfaces ..... sy	2,000	2.00	5.00	6.00	3.00	5.00
Rolled embank, Cl A ..... cy	1,950,000	1.05	1.30	1.50	1.50	2.05
Rolled embank, Cl B ..... cy	4,750,000	1.05	1.30	1.25	1.50	1.90
Refil & embank ..... cy	550,000	1.00	.45	.50	.20	.20
Rock embanking ..... cy	1,050,000	1.05	.60	1.25	1.50	1.90
Surf dress & grass ..... cy	100,000	1.75	1.50	2.00	1.40	1.60
Timb & lmbr, opn ct ..... Mfbm	100	300.00	250.00	300.00	180.00	220.00
Conc mas in open cut ..... cy	80,000	15.50	10.50	20.50	18.50	22.00
Dry rubble mas & pav ..... cy	36,000	20.00	15.70	28.00	30.00	30.00
Rub. pav in motor ..... cy	4,700	25.00	17.00	40.00	35.00	35.00
Stone mas in mortor ..... cy	150	50.00	40.00	40.00	35.00	37.00
Stone facg in mortar ..... cy	14,000	70.00	57.00	79.00	65.00	75.00
Gran copg, trim & curb ..... cy	2,000	196.00	175.00	280.00	190.00	200.00
Brick facing masonry ..... cy	140	125.00	187.50	185.00	125.00	.....
Brick backing masonry ..... cy	140	75.00	105.00	120.00	120.00	.....
Roof of superstr of release water chamber ..... sy	325	45.00	30.00	54.00	50.00	.....
Concrete pavement ..... cy	300	25.00	20.00	25.00	20.00	20.00
Bit macadam pavement ..... cy	1,100	9.00	10.00	7.00	15.00	10.00
Bituminous material ..... gal	19,000	.25	.20	.20	.25	.25
Run of bank gravel ..... cy	2,000	2.50	2.00	5.00	3.00	4.00
Structural steel ..... lb	150,000	.20	.20	.20	.20	.20
Sinking shaft ..... cy	4,200	35.00	21.00	53.00	35.00	.....
Excavation of tunnel ..... cy	5,900	25.00	51.00	40.00	25.00	.....
Enlarg shaft & tunnel ..... cy	200	25.00	20.00	38.00	15.00	.....
Prot coat, cmt mrtr ..... cy	200	40.00	20.00	52.00	35.00	30.00
Struct st support in shaft & tunnel ..... lb	200,000	.18	.15	.20	.15	.....
Timb shaft & tunnel ..... Mfbm	20	400.00	200.00	400.00	180.00	.....
Steel interlinings ..... lb	350,000	.25	.20	.21	.30	.....
Forms mas linings shaft ..... lf sh	150	125.00	200.00	300.00	150.00	.....
Valve & stilling chmbrs ..... lf ch	130	300.00	350.00	565.00	350.00	.....
Release water tunnel ..... lf tun	350	100.00	170.00	125.00	70.00	.....
Inclined tunnel ..... lf tun	180	300.00	325.00	800.00	300.00	.....
Concr mas in shaft ..... cy	2,850	20.00	16.00	23.00	17.00	.....
Concr mas in tunnels ..... cy	17,500	20.00	16.00	22.00	15.00	30.00
Excess concr masonry ..... cy	500	5.00	5.00	5.00	5.00	.....
Pumping ..... mil gal	100,000	.95	.50	.50	.20	.50
Drill holes, rk or mas ..... lf	2,500	2.00	2.00	1.70	1.00	1.00
St pipes for grtg ..... lf	6,000	2.00	1.00	2.00	1.00	1.00
Mak connect grouting ..... conn	200	10.00	5.00	8.00	10.00	3.00
Sand for filtr, grout & of cmt mor ..... cy	700	10.00	6.00	10.00	6.00	5.00
Mix & plac grout ..... cy	6,000	10.00	20.00	20.00	15.00	15.00
Portland cement ..... bbl	210,000	3.75	3.30	3.50	4.00	4.50
Cr stone and gravel ..... cy	1,300	10.00	6.00	10.00	5.00	.....
Vit, asb cmt & reinf concr outlr pipes ..... lf	27,000	2.25	1.50	2.25	2.00	(Vit) 1.50
St reinf ..... lb	300,000	.16	.12	.12	.12	.10
C I and st pipes & figs ..... lb	50,000	.25	.20	.48	.20	.20
Misc C I, W I & st ..... lb	220,000	.40	.50	.30	.30	.40
Bronze pipe castgs ..... lb	130,000	1.00	1.25	1.25	1.05	.....
Mischraz, brs, cpr, ld & mon met ..... lb	18,000	3.50	2.50	1.35	2.00	.....
Articles of aluminum ..... lb	14,000	3.50	4.00	4.00	3.50	.....
Caring for, inst & test equip & met wk furn by City ..... lb	210,000	.10	.15	.10	.07	.....
Chlorination ..... chl mo	250	200.00	200.00	400.00	200.00	200.00
Liquid chlorine ..... lb	350,000	.15	.15	.13	.10	.10
Passenger elevator ..... ls	.....	50,000.00	75,000.00	75,000.00	100,000.00	.....
Sanitary services ..... ls	.....	75,000.00	125,000.00	170,000.00	125,000.00	64,000.00
Cleaning up ..... ls	.....	25,000.00	100,000.00	40,000.00	125,000.00	64,000.00

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SINGLE-ACTING STEAM

PILE HAMMERS

Tough piles tame quickly when Warrington-Vulcan goes to work. It's a powerful, rugged hammer, built for heavy duty through and through, for economical, trouble-free performance year after year on the most difficult pile driving projects.

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The Single-Acting Warrington Vulcan operates at medium steam pressure, delivering a moderate frequency of low velocity blows from a relatively heavy ram to drive piles of any description.

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8
Why
Model
HD-10
86.63 drawbar hp.
Six speeds forward, to 6.03 m.p.h.; two reverse, to 4.15. Weight: 62" tread, 21,000 lbs.; 74" tread, 21,600 lbs. Available with large idler.

Let the Outstanding Advantages of These AHEAD-OF-THE-TIME Tractors Boost Your Production and Cut Your Costs...as They Have for Thousands of Owners

1 **1,000-HOUR LUBRICATION** of truck wheels, support rollers and idlers. You operate six months on a 40-hour week basis with just *one lubrication* . . . instead of daily, or even weekly, attention. Think what this means in labor and lubricant savings . . . and in working time gained! Think of the safety factor, too—no costly damage by greasing neglect.

2 **GENERAL MOTORS 2-CYCLE DIESEL ENGINE** Rugged, simple, economical, "hanging-on" power. Smooth — every down stroke a power stroke . . . less wear and tear on tractor and operator. Far less power loss than other engines at high altitudes.

3 **INTERCHANGEABLE ENGINE PARTS** Nearly all of the GM engine wearing parts are interchangeable with each of the GM engines on the various models of A-C tractors and motor graders—no matter the size. Lowers parts investment, simplifies maintenance for Allis-Chalmers fleet owners.

4 **INSTANT STARTING** GM 2-cycle diesel engines start as easily as your automobile . . . and they *start* and *operate* on *diesel fuel*. No need to let 'em idle during work-stop periods — no unnecessary engine wear or fuel waste.

Ask any owner...or arrange for a demonstration with your Allis-Chalmers dealer ..."SEEING IS BELIEVING"

Big Reasons

they're so popular

Model

HD-7

60.10 drawbar hp.
Four speeds forward, to 5.00 m.p.h.; reverse to 1.89. Weight: 52" tread, 13,830 lbs.; 63" tread, 14,000 lbs. Available with large idler.

5 **FAST MANEUVERING** 2-cycle diesel tractors are well known for their fast-working ability — not only for quickly traveling from cut to fill, but for turning around instantly in their tracks . . . and for easy maneuvering in and around tight places — especially important on bulldozing. Time saved is money made!

6 **PROPER BALANCE** Weight, speed and power are positively balanced in A-C tractors, assuring top performance on every job — pulling, pushing, lifting.

7 **OPERATOR COMFORT** All these advantages mean operator satisfaction, too — resulting in more work done more easily. Besides — he has a big, wide, comfortable seat, cushioned back, arm rests, roomy platform, convenient controls, good vision.

8 **MATCHED ALLIED EQUIPMENT** Each Allied manufacturer, skilled in his own field, works in complete cooperation with Allis-Chalmers in designing and building auxiliary equipment.

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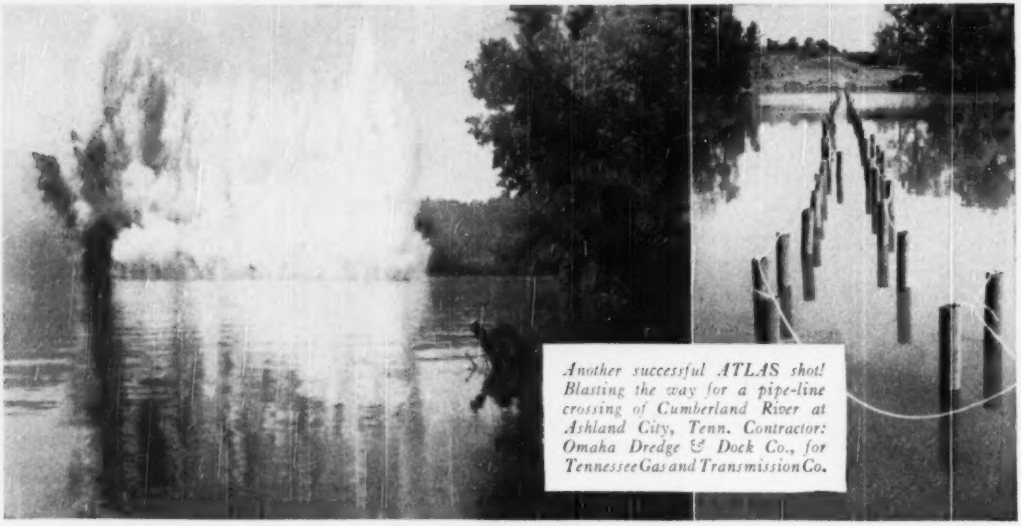
Originator of the Torque Converter Tractor

Blast A Ditch Under A River?



Another successful ATLAS shot! Blasting the way for a pipe-line crossing of Cumberland River at Ashland City, Tenn. Contractor: Omaha Dredge & Dock Co., for Tennessee Gas and Transmission Co.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager ***J. A. MAHONEY, Reports*** ***M. R. ROESSLER, Statistics***

WATER SUPPLY

BIDS ASKED

Md., Hyattsville—B.A. About 2/20—Washington Suburban Sanitary Comn., Hamilton St., Contr. 722-W, 3 m. g. storage tank, Riggs Rd. and University Lane, Chillum Heights, Harry Hall, ch. engr. CD 10/10.

Mo., St. Louis—B.A. 2/21—City, c/o Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., Zone 3, cleaning, repairing and lining with cement mortar approx. 26 930 lin. ft. 60 and 62 in. steel Transmission Water Conduit 3, between Howard Bend Water Works Plant on Missouri River and Station 270 plus 50 and two 48 in. steel pump discharge mains, approx. 720 lin. ft. Howard Bend Plant. St. Louis Co. **$130,000.** Plans deposit $15. CD 8/14/44.

O., Cleveland—B.A. 2/22—City City Hall, 6 and Lakeside Sts., 24 in. watermain in Granger St. $460,000. Plans deposit $25. Frank J. Schwemler, Auditorium Bldg., engr. CD 12/10/43.

Mich., Morenci—B.A. 2/23—City Council, City Hall, Div. I, deep wells; Div. II, grading; Div. III, distr. sys. extens.; Div. IV, foundations for elevated tank Div. V, furnish, Install deep well turbine; Div. VI, elevated tanks; Div. VII, pump house, $50,000. Plans deposit $10, Emerson D. Wertz & Assoc., 116½ E. High St. Bryan, O., engrs.

Tex., Fort Worth—B.A. 2/23—City, W. O. Jones, mgr., City Hall, 8,100 ft. 12 in. watermains on North Side, in 33 St., incl. 4,500 ft. watermains 28 St. from Long to North Side Elevated Tank. $120.000. Plans deposit $10. Joe J. Rady, 811 Insurance Bldg., engr. CD 2/4/49.

Tex., Robstown—B.A. 2/23—Nueces Water Imprvt. Dist. 3, Robstown, water imprvs. approx. 12,000 lin. ft. 6- to 16-in. lines. $75,000. Plans deposit $10. Myers & Noyes & Assoc., 320 Wilson Bldg., Corpus Christi, engrs.

▲ **Calif., Los Angeles**—B.A. 2/24—Los Angeles Dpt. Water & Power, 207 S. Broadway, welded steel penstocks, appurtenances, Owens River Gorge Proj. $1,-000,000. S. B. Morris, 207 S. Broadway, engr. CD 1/15/45.

O., Middletown—B.A., 2/24—City, City Hall, Contr. 2, 1¾ m. gal. covered rein.-con. storage reservoir, addnl. pumps, meters, gauges, revisions and main pumping station addns., booster station and piping, construct elevated tank fdn. Plans deposit $15. Floyd G. Browne & Assoc., 196 S. Main St., Marion, consult. engrs.

Tex., Baird—B.A. 2/27—Callahan County Water Control & Imprvt. Dist. 1, c/o Roy Gilbreaht, pres., Baird, Mexica Creek earthen dam. $125,000. Plans deposit $25. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs. CD 8/27/48.

Tex., College Staton—B.A. 2/28—Agricultural & Mechanical College of Texas, College Station, 17,200 lin. ft. up to 6 in. galvanized waterlines, etc. $35,000. Bids 12/16 rejected, L.B. **$31,210.** C. K. Leighton, c/o owner, A & M Const. Engr. CD 12/28, under LB.

Va., Arlington—B.A. 2/28—Arlington Co. Bd., M. P. Ayers, purch agt., Courthouse, WW imprvs., furnish, erect 1½ m.g. steel ground reservoir with concrete fdn., necessary connecting valves, watermains, 228,000 steel stand pipe with concrete fdns., water mains, valves.

Va., Staunton—B.A. 3/15—State Hospital Bd. of Commonwealth of Virginia, c/o Dr. Joseph E. Barrett, comr., 9 N. 12 St., Richmond, Div. I, water distr. sys., Div. II, sanitary sewerage sys., sewage treatment plant. Plans deposit $50 each. Wiley & Wilson, 905 Peoples Bank Bldg., Lynchburg, consult. engrs.

Ind., Marion—B.A. 4/7—City at office Bd. P. Wks., City Hall, Contr. 1, electrification and modifications of 7 St. Water Works Pump Station; Contr. 2, furnishing, erecting 2 elevated steel tanks and towers on water distr. sys.; Contr. 3, constr. 7 M.G.D. water filtration plant. Plans deposit Contr. 1, $10, Contr. 2, $10, Contr. 3, $30. Consoer, Townsend & Assoc., 351 East Ohio St., Chicago, Ill., engrs.; adv. ENR 2/9. CD 3/17/48.

LOW BIDDERS

Calif., Oakland—East Bay Municipal Utility Dist., 512 16 St., Jan. 26, 46,000 lin. ft. 4-to 8-in. c.i. and asbestos cement water mains Sec LS-485, from The Lowrie Paving Co., Inc., 1755 Evans Ave., San Francisco, **$104,394.**

▲ **Ia., Council Bluffs**—Bd. Waterworks Trustees, Council Bluffs, Jan. 31, Contr. 16, 21, 18R and 19R, WW. imprvs., incl. water purification plant with bldg., basins, clear well, etc., from C. C. Larsen & Sons, 10 N. Main St., **$1,187,419.** CD 12/22.

Ia., Dubuque—City, City Hall, Jan. 25, water softening plant, from R. V. Leary Co., Securities Bldg., Des Moines, **$649,100.** Est. $710,000. CD 1/3.

CONTRACTS AWARDED

Mich., Detroit—Bd. Water Supply, 735 Randolph St., water mains and relief sewers, E. 8 mile and Harper St., to Manicini & Miller-Thompson Constr. Co., 23170 Schoenherr Rd., East Detroit, **$281,600.** CD 3/30/43.

N. Y., New York—Bd Water Supply, 120 Wall St., completing construction Downsville Dam of Pepacton Reservoir and construction waste weir, weir channel and waste channel of that reservoir, release water chamber and tunnel and appurtenances of these structures, incl. closure of existing diversion tunnel and final grading in vicinity of the dam, near Village of Downsville Town of Colchester, Delaware Co., Contr. 401, to Carlo Bianchi & Co., Inc., 24 Union Ave., Framingham, Mass., Central Constr. Co., 6 Beacon Ave., Lawrence, Mass., Munroe Langstroth, Inc., 52 N. Washington St., North Attleboro, Mass., G. L. Rugo & Sons, Inc., 80 Boylston St., Boston, Mass., **$17,902,275.** Bids 1/17, awarded 2/3. CD 1/18, under LB.

Wis., Milwaukee—City, laying water mains in W. Orchard St., to Werner Co., 9713 Harding Blvd., Wauwatosa Zone 13, **$30,672.** Bids 1/26, awarded 1/27.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Calif., Oakland—B.A. 2/24—East Bay Municipal Utility Dist., 512 16 St., Sect. 1, South Interceptor Sewer, incl. 10,790 lin. ft. 42- to 63-in. precast rein.-con. sewer pipe, Spec. SD-41. Approx. $50,000. Plans deposit $10. John Longwell, 516 16 St., ch. engr. CD 11/13/46.

Ore., Milwaukie—B.A. 2/27—City, City Hall, intercepting sewers, sewage pump. station, sewage treatment plant. $200,000. Plans deposit $30. Stevens & Koon, Spalding Bldg., Portland, engrs. CD 11/22.

Tex., College Station—B.A. 2/28—Agricultural & Mechanical College of Texas, College Station, sanitary sewer mains and related items, $50,000. Bids 12/16 rejected, L. B. **$22,067.** C. K. Leighton, c/o owner, A & M Constr. Engr. CD 12/28, under LB.

Tex., Idalou—B.A. 2/28—City, sanitary sewers. $70,-000. Joe E. Ward, Nacol Bldg., Wichita Falls, engr.

LOW BIDDERS

Calif., Pixley—Pixley Public Utility Dist., Pixley, Jan. 31, sewage disposal plant and sewerage sys., from Kovick Bros. Constr. Co., Box 1323, Fresno. **$129,-238.**

Conn., Bristol—City, D. J. Donovan, supt. P. Wks., City Hall, Jan. 27, 15,000 8- to 12 in. sanitary sewers Farmington Ave. and in Mix St., from Williams Brothers Co., 12 Park Lane, East Walpole, Mass., **$107,179.** CD 12/29.

Mich., Detroit—Huron Clinton Metropolitan Auth., 1750 Guardian Bldg., Jan. 31, sewage treatment plant, booster station, and sewer, Huron Beach, from W. H. Harvie, 28450 Santa Barbara, Birmingham, **$128,800.** CD 1/12.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68-000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

Minn., Holdingford—Village, L. Achman, clk., Jan. 23, sewage treatment plant, from Bonander & Co., 1420 Washington Ave. S., Minneapolis, **$116,720.** CD 1/11, under Water Supply.

Tex., Fort Worth—City, W. O. Jones, mgr., City Hall, Feb. 2, sanitary sewers, Glen Garden addn., from Joe Bland Constr. Co., 3430 Worth Hills Dr. **$106,700.** Est. $118,00. CD 1/17.

▲ **Wis., Milwaukee**—Sewerage Comn. of City of Milwaukee, Jones Island, Feb. 2, aeration and sedimentation tanks and operating gallery extens. to sewage treatment plant, from Siesel Constr. Co., 314 E. Ogden Ave., Zone 2, **$1,197,483.** CD 12/28.

CONTRACTS AWARDED

Ia., Carter Lake—City, Don R. Hil, clk., sewers, to Hart Constr. Co., 668 S. 41 St., Omaha, Neb., **$110,522.** Bids 2/1. CD 1/17.

N. Y., Mineola—Bd. Supervs. Nassau Co., Old Courthouse, Contr. No. 1002-2T-2, Sect. 2, trunk sewer line for county sewerage sys., Rockville Center to Garden City, to Hendrickson Bros., 63 N. Central Ave., Valley Stream, **$867,330.** Bids 1/24. CD 1/16.

BRIDGES

BIDS ASKED

New Jersey—B.A. 2/21—New Jersey Turnpike Auth., Veterans Room, War Memorial Bldg., Trenton,

Union Co.—Contr. 12, dual turnpike bridge over Rahway River, incl. constr. 6 pairs concrete piers and two pairs abutments with necessary excav. cofferdams, fender system etc., incl. 2,600 cu. yd. open foundation excav., 315,000 lb. steel bearing piles, 265,000 lb. reinforcing steel. CD 7/13, under Streets and Roads.

Pennsylvania—B.A. 2/21—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,

Allegheny Co.—constr. substructure of bridge carrying western exten. of Pennsylvania Turnpike over the Allegheny River, 0.4356 mi. Sec. 31AB, Harman and Plum Twps. Plans deposit $10. Modjeski & Masters, State Street Bldg., Harrisburg, engr.

New Jersey—B.A. 2/24—New Jersey Turnpike Auth., Veterans Room, War Memorial Bldg., Trenton,

Middlesex and Union Counties—Contr. 9, constr. concrete piers and abutments for bridge over Rahway River between Carteret and Linden, incl. 4,394,000 cu. yd excav. grading, 790,000 sq. yd. topsoiling, 370,000 lb. reinforcing steel, 24,800 ft. underdrains, 13,520 ft. concrete pipe culverts, 4,210 ft. corrugated metal pipe culverts. CD 7/13, under Streets and Roads.

▲ **Pennsylvania**—B.A. 3/17—State Hy. & Bridge Auth., 506 N. Office Bldg., Harrisburg,

Cumberland and Dauphin Counties—27 span deck plate girder I-beam and rein.-con. T-beam bridge, with grading, paving approaches and connecting side streets; construct pedestrian underpass and rein.-con. box "North Bridge" over Susquehanna River between Wormleysburg and Harrisburg, 7,990 ft. L. R. 770 (2); 1 (13); 30 Spur E; 21021 Spur E; 21021 (1). T. R. 14; 15; 22. $5,500,000. Plans deposit $5. Mojeski & Masters, State Street Bldg., engrs. CD 5/9.

LOW BIDDERS

Maryland—State Rds. Comn., Baltimore, Jan. 31, triple 75 ft. span steel I-beam bridge on rein.-con. piers and abutments supported on timber piles over Patuxent River on Annapolis-Washington Expressway, way, incl. dual superstructures, Contr. AA-389-6-315; P-631-5-515, Anne Arundel and Prince Charles Counties, from A. S. Wikstrom, Inc., Skaneateles, N. Y. **$384,832.** CD 1/18.

CONTRACTS AWARDED

Kentucky—State Hy. Dpt., Frankfort, bridge over Caney Creek in Caneyville and traffic bound limestone approaches, 0.309 mi. Caneyville-Falls of Rough Rd. S 163 (1) S. P. 43-315, Grayson Co., to H. W. Caldwell & Son, Inc., Ashland City, Tenn., **$44,920;** bridge over Robinson Creek and traffic bound approaches, 0.435 mi. Robinson Creek Rd., approx. 5 mi. south of Junction KY 70, ½ mi. east of Campbellsville, S. P. 109-108, Taylor Co., to Nally, Ballard & Saltsman, Inc., Bardstown, **$54,227.** Bids 1/27. CD 1/11.

Maine—State Hy. Dpt., State House, Augusta, concrete, steel bridge between Old Town-Indian Island, to Lackawanna Steel Constr. Corp., Walden Ave., Cheektowaga, Buffalo, N. Y., **$73,061.** CD 3/7/45.

New Jersey—State Hy. Dpt., Trenton, Manasquan River Bridge approaches and Ashley Avenue Bridge, Rt. 34, Sect. 40B, Proj. U-59 (5), Brielle-Point Pleasant Beach, Monmouth and Ocean Counties, to Lugano Brothers, Inc., 172 Passaic Ave., Belleville, **$622,322.** Bids 1/12, awarded 1/19. CD 1/16, under LB.

▲ **New York**—Bureau Contracts & Accounts, Albany, 3 grade separation structures carrying tracks of New York Central, Erie and D. L. & W. Railroads over reconstruction sect. of Delaware Ave. in city of Buffalo, incl. twin 95 ft. span plate girder bridges at New York Central crossing between Linden and Knox Aves., single span 95 ft. long plate girder bridges for

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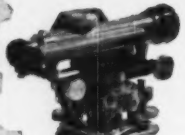

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Gasoline powered models—A. C.: 350 to 35,000 watts. D. C.: 750 to 15,000 watts. *Diesel plants:* 2,500 to 55,000 watts.

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Minneapolis 5, Minnesota.

Erie R.R. and the D. L. & W. R.R. crossings between Hinman and Comet Aves., 0.26 mi. b. conc. paving Delaware Ave., etc., Erie Co., to H. F. Stimm, Inc., Ellicott Square, Buffalo, $1,078,523. Bids 11/22. CD 11/30, under LB.

STREETS AND ROADS

BIDS ASKED

New Jersey—B. A. 2/21—New Jersey Turnpike Auth., Veterans Room, Warm Memorial Bldg., Trenton.

Burlington and Mercer Counties—Contr. 8, grading, drainage work covering about 46 mi. on Turnpike between Moorestown and Allentown and between Allentown and the Raritan River, incl. 3,783,400 cu. yd. excavation, grading 541,800 sq. yd. topsoiling, 20,800 lb. reinforcing steel, 18,150 ft. rein.-con.

Hudson Co.—Contr. 11, grading, drainage work covering about 1½ mi. from Hackensack River to Wiegands Lane in Secaucus, incl. demolition of bldgs., sheds and other structures within right-of-way, rock excav., stabilization of existing materials by use of vertical sand drains and constr. embankments, etc. in connection with grading, drainage incl. 186,000 cu. yd clearing, grubbing, excav. earth, rock, muck aggregating 1,113,000 cu. yd. borrow excav., 56,000 ft. vertical sand drains, 1,030 ft. rein.-con. culvert pipe. CD 7/13.

Pennsylvania — B. A. 2/21 — Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg.

Somerset Co.—construct 75 ft. exten. to turnpike arch and necessary excavation, clearing, grubbing and channel change in vicinity of east bound Mile Post 61, on present Turnpike, Allegheny Twp. Plans deposit $10. R. B. Stone, c/o owner, ch. engr.

† **Nebraska**—B. A. 3/2—Bureau Reclamation, Dpt. Interior, Indianola, relocation county roads at Medicine Creek Reservoir, Frenchman—Cambridge Div., Missouri River Basin Proj., Spec. R7-90 (Region 7).

† **Virginia**—B.A. 3/2—Bureau Pub. Roads, Dpt. Commerce, 1440 Columbia Pike, Arlington.

Grayson Co.—0.023 mi. rein.-con. structure, reconstructing 0.215 mi. State Route 89, Proj. 1W2, Blue Ridge Parkway. Plans deposit $10.

LOW BIDDERS

Colorado—State Hy. Dpt., Denver, Jan. 31, asph. surf. tr. 11.834 mi. State Hy. 52, beginning 1 mi. east of Wiggins and extend. south, Colo. Proj. S- SG-0030 (1), Morgan Co., from L. J. Hesser, P. O. Box 806, Greeley, $124,778. Est. $148,789. CD 1/20.

Colorado—State Hy. Dpt., Denver, Feb. 3, grading, structures 4.818 mi. State Hy. 20 from Mother Grundy to Forks Creek, Via Clear Creek and Gilpin Counties, from Horner & Switzer Constr. Co., 118 S. Pecos St., Denver, $645,383; est. $699,999; grading, structures 2.480 mi. on proposed relocation of State Hy. 10 between Durango and Hesperus, La Plata Co., from Ed Lively Constr. Co., Colores, $148,261, est. $150,652.

Kentucky—State Hy. Dpt., Frankfort, rejected bids Jan. 31, bit. surf. Class I, 19.01 mi. S.P. Group 1 (1950), Marshall Co., L.B. $107,957. CD 1/23.

▲ **Massachusetts**—Commonwealth of Mass., Dpt., P. Wks., 100 Nashua St., Boston, Jan. 31, Federal Aid State hy. and bridge constr., U-272 (26), Lexington, from Gil Wyner Co., 12 Newland St., Malden, $1,972,092***Federal Aid state hy. and bridge constr. U-272 (23), Burlington, from Peter Salvucci, 55 Pond St., Waltham, $1,679,530***Federal Aid state hy. and bridge constr., U-272 (25), Waltham-Lexington, from R. F. Carpenter Co., Alburg, Vt., $1,113,184. CD 1/6.

† **Mississippi**—Bureau Pub. Rds., Dpt. Commerce, First National Bank Bldg., Florence, Ala., Feb. 1, 22.264 mi. Proj. 3M9-3NT, Natchez Trace Parkway, Madison and Leake Counties, approx. 55,900 cu. yd. borrow for topping; 110,000 gal. tar, 78,700 tons type 1-3 hot asphaltic concrete paving, from Forcum-James Co., Dyersburg, Tex., $555,027. CD 1/11.

▲ **Missouri**—State Hy. Comn., Jefferson Co., Feb. 3, from Mid American Engr. Corp., Skokie, Ill., wid'n. and 24 ft. b. conc. 5 mi. Rte. 61 road from Sikeston to New Madrid, Proj. F 15 (2)-C, $128,899; wid'n. and 24 ft. b. conc. 4.486 mi. Rte. 61, road from Sikeston to New Madrid, Proj. F 15 (2)-D. $103,671; wid'n. and 24 ft. b. conc. paving 5 mi. Rte. 61, road from Sikestown to New Madrid, Proj. F 15 (2)-C, $134,680 all above New Madrid Co.***from Granite Bituminous Paving Co., 3961 Arsenal St., St. Louis, Mo., wid'n. and 24 ft. b. conc. 4.979 mi. Rte. 61 road from Sikeston to New Madrid, Proj. F 15 (2)-A, New Madrid Co., $128,049***from Chas. G. Gilmore Asphalt Products, Anna, Ill., wid'n. c. conc., and 24 ft. b. conc. 2.088 mi. Rte. 61, road from Portageville southerly, Proj. F 80 (2)-B, $76,983; wid'n. c. conc. and 24 ft. b. conc. 4.18 mi. Rte. 61, road from Portageville southerly Proj. F 840 (2)-A, $151,110, all above Pemiscot Co.; wid'n. and 22 ft. b. conc. 1.415 mi. Rte. 25, road from Bloomfield southerly towards Dexter, Proj. F, 197 (4), Stoddard Co., $90,065***from Payne & Dolan, Inc., 20 N. Wacker St., Chicago, Ill., wid'n. and 22 ft. b. conc. 3.917 mi. Rte. 61, road from Bowling Green southeast to Lincoln Co. line, Proj. F-257 (13)-C, $100,437; wid'n. and 22 ft. b. conc. 3.939 mi. Rte. 61, road from Bowling Green southeast to Lincoln Co. line, Proj. 257 (13)-B, $100,884; wid'n. and 22 ft. b. conc. 3.939 mi. Rte. 61, road from Bowling Green southeast to Lincoln Co. line, Proj. F 257 (13)-A, $101,793, all above Pike Co.*** from St. Joseph Fuel Oil & Mfg. Co., 1207 S. 4 St., St. Joseph, Mo., oil aggregate surf. 83.302 mi. 13 sections various routes. Div. 7, Group 1, Barry Baron, Dade, Jasper, McDowell and St. Clair Counties, $78,711 ***from W. J. Menefee Constr. Co., Sedalia, oil aggregate surf. 54.271 mi. 12 sections various routes. Div. 10, Group 1, Cape Girardeau, Scott, Stoddard and Mississippi Counties, $58,754***from Howard Constr. Co., Sedalia, oil aggregate surf. 46.336 mi., Div. 5, Group 1, 6 sections various routes in Boone, Callaway, Cole, Howard and Miller Counties, $51,385. CD 1/18.

New Jersey—State Hy. Dpt., Trenton, Feb. 2, constr. 4.506 mi. northeasterly gravel shoulder on Route 43, Sect. 128 from Hamburg Ave., Egg Harbor City to Union Ave., Elwood Multica Twp., Atlantic Co., from Reid Contracting Co., Woodbridge, $139,657*** mod. pen. macad. 1009 mi. E. Main St., Main St. and Maple Ave. from Fort Ave. to Burlington Co. line, Plumstead Twp., S-131 (1), Ocean Co., from Mutual Contg. Co., Inc., 69 Bay Ave., Atlantic Highlands, $90,464***pen. macad. and c.conc. 0. 31 mi. Route 23, Sect. 8A, N. Y. S. and W. Railroad Bridge and approaches near Hamburg, Hardyston and Wantage Twps., Sussex Co., from M. Sappah & Sons, Inc., Kindermack Rd., Montvale, $298,739. CD 1/16.

North Carolina—State Hy. & Pub. Wks., Comn., Raleigh, Jan. 31, sand asph. or b. conc. base and b. conc. surf. course 1.27 mi from intersection of Pine St. and U. S. 117 and N. C. 24 in Warsaw, north along Pine St. to U. S. 117, Proj. No. 2200 F-13 (1), Duplin Co., from Exum-Cline Constr. Co., Box 1021, Rocky Mount, $78,843, est. $75,000-$100,000***c. conc. and structures 2.31 mi. U. S. 64, from intersection with N. C. 87 near W. city limits of Pittsboro, east to point east of east city limits of Pittsboro, Proj. No. 4078 F-99 (12) F-277 (7), Chatham Co., from F. D. Cline Constr. Co., Box 349, Raleigh, $228,203, est. $225,000-250,000***traffic bound macad., bit. surf. tr. or b. conc. 6.62 mi. N. C. 218 from point on N. C. 218, approx. 1 mi. east of Mint Hill, southeast to point on 151 at Fairview, Proj. No. 6985 S-293 (1), Union and Mecklenburg Counties from Blankenship Bros., Piedmont Bldg., Charlotte, $126,247, est. $150,000,-175,000***traffic bound macad., bit. surf. tr. 6.7 mi. from point on N. C. 18, 12 mi east of Sparta, east to point east of Blue Ridge Parkway, surf. 2 connecting county roads, Proj. 7096, S-158 (3), Alleghany Co., from W. E. Graham & Sons, Cleveland, $185,105, est. $225,000-250,000***traffic bound macad., bit. surf. tr., b. conc. 5.03 mi. from point on N. C. 65, northeast of Germanton, north to beginning of bit. surf. tr. 4 mi. south of Meadows, Proj. 7505, S-317 (1), Stokes Co., from Kiker & Young, Reidsville, $106,356, est. $125,000-150,000. CD 1/23.

North Carolina—State Hy. & Pub. Wks. Comn., Raleigh, Jan. 31, from Dickerson Inc., Box 391, Monroe, traffic bound macad. or STBC, bit. surf. tr., or sand asph. 8.4 mi. from point on U. S. 17, 1 mi. east of Windsor, southeast by Ellis Store to point on county road 1.8 mi. north of Cashie River Ferry, Proj. No. 1-100, S-296 (1), Bertie Co., $144,131, est. $100,000-$125,000. STBC, bit. surf. tr. or sand asph., or b. conc. 8.67 mi. from point 0.5 mi. northeast of Micro on U. S. 301, north 8.67 mi. to N.C. 42 at Stancils Chapel, Proj. No. 4-9-36-204, Johnston Co., $74,347, est. $75,000-$100,000, bit. surf. tr. or sand asph. 19.8 mi. from Rosemead and Wakelon via Todd's X-roads to Asheville, from Woodward toward Wildsor and from Windsor toward Grabtown, Proj 1-9-1-201, 1-9-1-204, Bertie Co., $71,815, est $50,000-$75,000, traffic bound macad. or STBC, bit. surf. tr. or sand asph. 8.1 mi. from point on N. C. 308, 2 mi. northwest of Windsor, northwest 8.1 mi. via Republican, Proj. 1-9-1-202, Bertie Co., $125,821, est. $125,000-$150,000.

From Nello L. Teer Co., Inc., Box 1131, Durham, PCSBC, bit. surf. tr. or b. conc. 5.01 mi. from end Bit. surf. tr. at Boone's X-roads, southeast along existing county road to beginning of bit. surf. tr. in Bryantown, Proj. 1-602, S-316 (1), Northamptor Co., $68,385, est. $75,000-$100,000, STBC, bit. surf. tr. or sand asph. or b. conc. 8.8 mi. from point on 70, 4.8 mi. northwest of Raleigh, northwest to Durham Co. line, Proj. 4-9-38-204, Wake Co., $72,478, est. $50,000-$75,000, STBC, bit. surf. tr. or b. conc. 8.5 mi. from point in Murfreesboro northwest to Kirby's Creek Bridge and from Kirby's Creek Bridge, northwest to N. C. 35, approx. 0.4 mi. north of Severn, Proj. 1-9-11-203, Hertford and Hampton Counties, $62,118, est. $50,000-$75,000, STBC, bit. surf. tr. or b. conc. 13.7 mi. Part 1, county road between Severn and Margarettsville, Part 2, county road from U. S. 258 toward Potecasi, Part 3, from point on U. S. 258 south through Creeksville 5.69 mi. on county road, Proj. 1-9-11-203 Northampton Co., $71,259, est. $50,000-$75,000, STBC, bit. surf. tr. or b. conc. and structures 6.6 mi. from point on U. S. 158, 1.4 mi. east of U. S. 301 to N. C. 305, Proj. 1-9-11-203, Northampton Co., $71,220, est. $50,000-$75,000.

From Ray D. Lowder, Albemarle, traffic bound macad., bit. surf. tr. or b. conc. 5.46 mi. from U. S. 64, north to a point approx. 8 mi. south of Archdale Proj. 6-403, S-52 (2), Randolph Co., $109,014 est. $100,000-$125,000***from National Truck Service, Box 39 Asheville, traffic bound macad., bit. surf. tr. or b. conc. 3.67 mi. from point 5 mi. west of Wilkesboro on N. C. 268, southwest to point on N. C 268, 8 mi. west of Wilkesboro, Proj. 7815, S-244 (2), Wilkes Co., $102,963, est. $100,000-$125,000, from Barrus Constr. Co., Kinston, sand asph. surf. 8.37 mi. Part 1, from intersection of U. S. 258 at Woodington, northeast to intersection with N. C. 12 at Southwood, Part 2, from Kinston northeast to intersection with N. C. 55, 2 mi. west of Oak Bridge, Proj. 2-9-21-205, Lenoir Co., $93,108, est. $75,000-$100,000, sand asph. surf. 7.5 mi. from point on N. C. 41 at Taylors Corner, north to Pleasant, then to Jones-Lenoir county line, Proj. 2-9-20-202, Jones Co., $51,246, est. $25,000-$50 000***from N. F.

(Continued on page 88)

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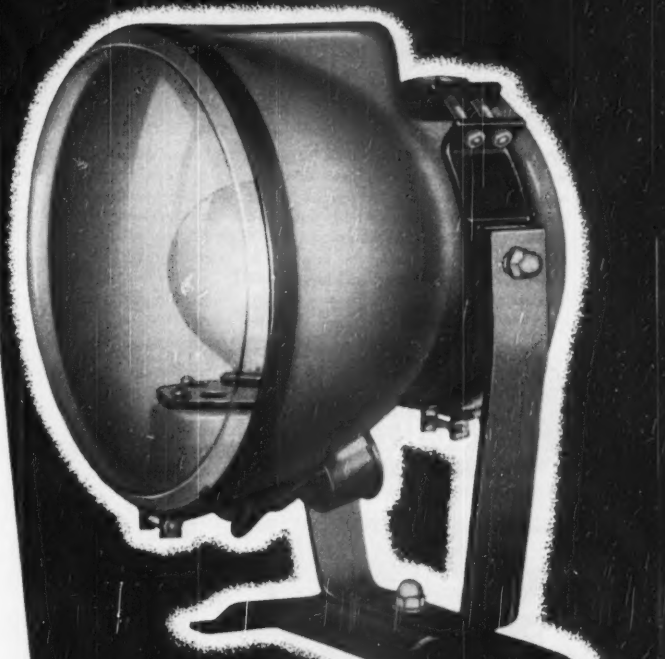

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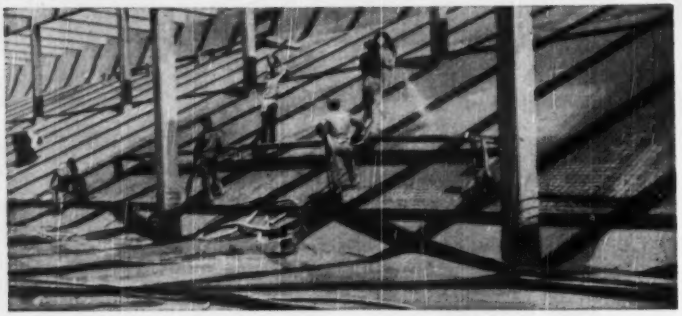

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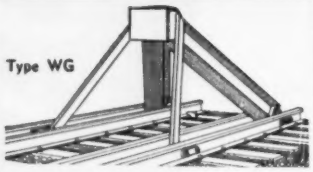

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(Continued from page 86)

Eure, Beaufort, traffic bound macad., or STBC, bit. surf. tr. or sand asph. 10.8 mi. from point on N. C. 94, 13.3 mi. south of Columbia, southeast through Gum Neck to Swindells Store, then northeast to N. C. 94, Proj. 2-9-25-201, Tyrrell Co., **$242,633**, est. $175,000-$200,000, STBC, bit. surf. tr. or b. conc. 15.1 mi. from point 5 mi. south of Roanoke Rapids, southeast through Heathsville to intersection with county road between Enfield and Hollister, Proj. 1-9-8-201, Halifax Co., **$110,666**, est. $100,000-$125,00.

From Exum-Cline Constr. Co., Box 1020, Rocky Mount, bit. surf. tr. or sand asph. surf. 7.6 mi. from point on N. C. 111, north of city limits of Beulaville, north to end of pavement 1 mi. south of Pink Hill, Proj. 3-9-31-203, Duplin Co., **$77,476**, est. $75,000-$100,000***from Grannis & Sloan Fayetteville, traffic bound macad., bit. surf. tr. or sand asph. 13.2 mi. from point 2.2 mi. north of Washington, northwest to Martin Co. line and to Pitt Co. line at Transfers Creek, Proj. 2-9-15-024, Beaufort Co., **$198,968**, est. $175,000-$200,000***from J. S. Hill Constr. Co., Washington, traffic bound macad., bit. surf. tr. or sand asph. surf. 4.9 mi. from Watson's Corner east to Nebraska and from Nebraska to point 0.4 mi. west of Middletown, Proj 2-9-19-202, Hyde Co., **$141,431**, est. $100,000-$125,000.

From A. C. Shearer Co., Chapel Hill, traffic bound macad. or PCSBC and bit. surf. tr. 10.3 mi. Part 1, from point on U. S. 21 south of Arlington, east 6 mi. to N. C. 67 at Bryant's Store, Part 2, from point at south city limits of East Bend, south 4.3 mi. via Flint Hills, Proj. 8-9-76-201, Yadkin Co., **$111,593**, est. $100,000-$125,000, traffic bound macad., or PCSBC and bit. surf. tr. 15.5 mi. three sections of county roads, Proj. 8-9-73-20, 8-9-73-202, Surry Co., **$150,134**, est. $150,000-$175,000, traffic bound macad. or PCSBC and bit. surf. tr. 6/5 mi. from point on U. S. 421, 3.2 mi. west Yadkin-Wilkes Co. line, south 6.5 mi. toward Osbormille, Proj. 8-9-75-202, Wilkes Co., **$63,898**, est. $50,000-$75,000***from Ben B. Propst, Concord, traffic bound macad., and bit. surf. tr. or b. conc. 6 mi. from Bixby southwest through Cornatzer south to junction with U. S. 64, Proj. 8-9-70-202, Davie Co., **$62,556**, est. $50,000-$75,000***from W. H. Scott, Inc., Franklin, Va., traffic bound macad., or PCSBC and bit. surf. tr. or b. conc. 20.3 mi. various county roads, Proj. 8-9-71-201, 202, 203, Forsyth Co., **$216,442**, est. $250,000-$300,000.

From E. H. Himes Constr. Co., Inc., Greenwood, S. C., traffic bound macad., and bit. surf. tr. 24.1 mi. 8 sections county roads, Proj. 10-9-89-201, Cherokee Co., **$251,558**, est. $225,000-$250,000, traffic bound macad., and bit. surf. tr. 14.7 mi. 7 sect. of county roads, Proj. 10-9-90-201, Clay Co., **$149,713**, est. $125,000-$150,000***from Sam Finley, Inc., 1615 Cleveland Ave. S. W., Roanoke, Va., traffic bound macad., and bit. surf. tr. 15.5 mi. from point of Cheoah, northeast 11.75 mi. on county road from point west of Milltown, west 3.7 mi. on county road. Proj. 10-9-91-201, Graham Co., **$147,527**, est. $125,000-$150,000, bit. surf. tr. or b. conc. 19.4 mi. 5 sects. county roads, Proj. 1-9-8-203. 204, Halifax Co., **$62,900**, est. $50,000-$75,000***from A. R. Thompson, Contractors, Inc., Main St., Rutherfordton, traffic bound macad. and bit. surf. tr. 14.4 mi. 10 sects. county roads, Proj. 10-9-94-201, Jackson Co., **$129,700**, est. $125,000-$150,000; traffic bound macad., and bit. surf. tr. 16.1 mi. 8 sects. of county roads, Proj. 10-9-98-201. Swain Co., **$134,723**, est. $125,000-$150,000***from Kiker & Yount, Inc., Reideville, traffic bound macad. and bit. surf. tr. 12.3 mi., 4 sects. of county roads, Proj. 10-9-95-201, Macon Co., **$125,086**, est. $100,000-$125,000. CD 1/23.

O., **Toledo**—City, City Hall, Jan. 24, pave and landscape new Union Station Plaza, from R. I. Bernath, 4025 N. Haven St., Zone 12, **$87,125**. Est. $119,505. CD 1/12.

Texas—State Hy. Comn., Austin, cancelled bids to have been opened Feb. 14, grading, structures, c. conc., and Main Street Viaduct, Hy. U. S. 80, F 439 (19), El Paso Co. **$256,000**. D. C. Greer, c/o owner, engr. CD 1/26.

Tex., **Beaumont**—Jefferson Co., Courthouse, Jan. 30, flexible base course and asph. topping portion of Jap Rd., and clearing, grubbing, drainage structures, grading, Tram Rd., from Vilbig Constr. Co., 3901 Drew St., Houston. **$99,985**. CD 1/18.

CONTRACTS AWARDED

Que., **Arvida**—City, J. A. Freckette, secy., paving road along north shore of Saguenary River from the Central Works, east toward new Arvida Bridge 1 mi. approx., to Pie Constr. Co., Ltd., Arvida. Approx. $70,000.

EARTHWORK, WATERWAYS

BIDS ASKED

† **Illinois**—B.A. About 2/21—U. S. Eng., 808 U. S. Court House and Custom House, St. Louis 1, Mo., levees, Wood River Drainage and Levee District, Proj. Item 1-B (1), Madison Co., incl. 3,200 lin. ft. earthen levee, 42 in. gravity drainage structures, 30 in. gravity drainage structure, minor alterations to 2 pump. stations, stone protection on portion of embankment slopes in vicinity of East Alton. Extended date. CD 1/6.

† **California**—B.A. 2/24—U. S. Eng., Wright Bldg., Sacramento, slide gates, appurtenances Borel Canal outlet work Isabella Proj., Kern Co. Extended date. CD 1/16.

AIRPORTS

BIDS ASKED

† O., Cleveland—INSTRUMENT RESEARCH LABORATORY—B.A. 4/1—National Advisory Committee for Aeronautics, Brookpark Rd., steel, face brick instrument research laboratory, service tunnel connecting to engine research bldg. $650,000. Everhardt & Zajack, Hippodrome Bldg., archts. CD 1/27.

▲† O., Cleveland—PROPULSION SCIENCE LABORATORY—B.A. 5/1—National Advisory Committee for Aeronautics, Brookpark Rd., concrete, steel, face brick propulsion science laboratory equip. bldg., concrete fdns. for heavy exhaust and compressor equip. $1,000,000. CD 1/27.

PUBLIC BUILDINGS

BIDS ASKED

N. J., Collingswood—GYMNASIUM—B.A. 2/20—Bd. Educ., Collingswood, gymnasium. $340,000. Radey & MacNeily, 101 N. 7 St., Camden, archts. Horace B. Nicholson, Old Broad St. Station Bldg., Phila., Pa., engr. CD 8/12.

Ia., Des Moines—SCHOOL—B.A. 2/21—Independent School Dist., 629-3 St., Des Moines, Adams Elementary School addn. $400,000. Keffer & Jones, 203 Masonic Temple Bldg., archts. CD 2/11/45.

† Md., Annapolis—BLDG. ALTERATIONS—B.A. 2/23—Pub. Wks. Office, U. S. Naval Academy, altering Bldgs. 158 and 165, Spec. 23514. Plans deposit $10.

N. Y., Brockport—SCHOOL—B.A. 2/23—Bd. Educ., High School Bldg., school addn. $460,000. Plans deposit $30. Kaelber & Waasdorp, 311 Alexander St., Rochester, archts.

O., Bowling Green—HIGH SCHOOL—B.A. 2/23—Bd. Educ., H. L. Bowman, supt. Bowling Green, Senior High School addn. $298,000. CD 3/17.

† Wash., Seattle—B.A. 2/24—OPERATIONS—U. S. Eng., 4735 E. Marginal Way, Zone 4, operations bldg., power bldg., tower, central heating plant, barracks, mess hall, etc. for Station P/1A, Eng 45-108-50-47. Plans deposit $25.

Calif., Norwalk—LAUNDRY—B.A. 2/28—State Div. Architecture, P. Wks. Bldg., Sacramento, 1 story, rein.-con. laundry bldg. addn. at Norwalk State Hospital. Plans deposit $25. Anson Boyd, Sacramento, state archt.

Calif., San Francisco—SCHOOL—B.A. 3/1—Dpt. P. Wks., City Hall, (1) general contract (2) mechanical and plumbing (3) electrical work, Santiago Home School Unit, Proj. 62, Job. 794. Approx. $250,000. Plans deposit $25. on (1) $10 on (2) and (3) Harvey P. Clark & J. F. Beuttler, 210 Post St., San Francisco, archts. CD 2/11.

N. Y., Beacon—HOSPITAL, etc.—B.A. 3/1—Bureau Contracts & Accounts, Albany, hospital bldgs. addns., alterations, Matteawan State Hospital. Plans deposit $30. CD 6/29/45.

† Alaska, Nome—SCHOOL, etc.—B.A. 3/8—Comr. Indian Affairs, Dpt. Interior, Interior Bld., 19 and C Sts., N.W., Wash. 25, D. C., 74x221 ft. vocational school; 47x105 ft. dining hall, 30x121 ft. health center and five 30x121 ft. dormitories, all frame, 1 story, bsmt. bldgs., for Alaska Native Service at White Mountain Village, 75 mi. east of here.

CONTRACTS AWARDED

▲ Calif., San Jose—HIGH SCHOOL—East Side Union High School Dist., 115 N. White Rd., rein.-con., stucco 14 unit Jame Lick High School, to O. E. Anderson, Box 251, $1,125,820. Bids 1/24. CD 1/31, under LB.

▲ D. C., Wash.—SCHOOL—Dist. Comrs., District Bldg., Spingarm High School 24 St. and Benning Rd. N. E., to Cramer-Vollmerhausen, 2601 Connecticut Ave. N. E., $2,877,700. Bids 1/26, awarded 1/30. CD 1/31 under LB.

N. Y., Grahamsville—SCHOOL—Bd. Educ., Union Free School Dist. 1, Grahamsville, school, to Christensen & Nielsen, 114 Union St., Schenectady, $492,642. Bids 1/19. CD 1/12.

N. B., Fredericton—PUBLIC—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., public bldg., to Caldwell Constr. Co., Ltd., 123 York St., Approx. $734,000. Bids 1/18. CD 1/31, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

N. H., Concord—SCHOOL, etc.—B.A. 2/27—St. Paul's School, Peasant CSt., science bldg. and laboratory, Gugler, Kimbell & Husted, 205 E. 41 St., New York, 17, N. Y., archts.

SOON LETS CONTRACT

N. Y., New York—TELEPHONE—New York Telephone Co., 140 West St., soon lets contract telephone bldg. alterations 2373 Tiebout Ave. Voorhees, Walker, Foley & Smith, 101 Park Ave., Zone 17, archts.

CONTRACTS AWARDED

▲ Calif., San Rafael — RESIDENCES, etc. — United Housing Corp., 200 Masonic Ave., San Francisco, 550 residences, shopping center and site development in Madera Gardens tract. Owner builds. $8,000,000. Elmore Hutchinson, 58 Sutter St., San Francisco, engr.

(Continued on page 91)

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(Continued from page 89)

▲ **O., Parma**—HOMES—Anthony Visconsi, 5610 Snow Rd., 340 homes, W, 130 St. and Pearl Rd., Parma Heights, separate contracts. $3,740,000.

Ont., Eastview—APARTMENT—L. Petigorsky, 124 Baskam St., Ottawa, 12 apartment blocks to K. J. Greene, 18 Rideau St., Ottawa. Approx. $550,000.

INDUSTRIAL BUILDINGS

SOON LETS CONTRACT

La., New Orleans—WAREHOUSE—Ballard & Ballard Co., 912 E. Broadway, Louisville, Ky., soon lets contract 1 story, metal warehouse and office, S. Claiborne Ave. and Clio St. Plans deposit $30. Riccuti, Stoffle & Assoc., Queen & Crescent Bldg., archts.

LOW BIDDERS

▲ **Ont., London**—PLANT—Kelvinator of Canada, Ltd., Dundas St. E., 4 steel, brick plant addns., concrete floors, from Hyatt Brothers, 290 Egerton St., Approx. $2,000,000. J. M. Watt & P. F. Tillmann, 343 Richmond St., archts.

CONTRACTS AWARDED

Calif., San Leandro—PLANT—Andre Paper Box Co., 545 Mission St., San Francisco, industrial plant, to W. C. Tait Co., 461 Market St., San Francisco, Approx. $90,000.

Calif., San Leandro—INDUSTRIAL—Special Equipment Co., 512 Alice St., Oakland, industrial bldg., to E. Flener, 3866 Maybelle St., Oakland, $68,000. CD 5/6/48.

UNCLASSIFIED

LOW BIDDERS

▲ **Calif., Los Angeles**—TRANSMISSION LINE—Los Angeles Dpt. Water & Power, 207 S. Broadway, Feb. 1, 255 mi. transmission line from Owens Gorge in Mono Co. to Receiving Station E in Los Angeles Co., Proposal 1, constr. footings and erection of towers, from Wonderly Constr. Co., 2694 Lime Ave., $1,513,384; Proposal 2, installation of conductor, ground wire and appurtenances, and Proposal 3, combination of Proposals 1 and 2, from H. C. Smith Co., 718 East 16 St., $582,569 and $2,227,062 respectively. CD 1/16.

Colorado—PIPELINE—Phillips Petroleum Co., Bartlesville Okla., extend. pipeline from Lajunta to Denver. Owner builds, $400,000.

CONTRACTS AWARDED

Ill., Clinton—DRIVE-IN THEATER—Frank Stewart c/o Family Investment Co., Danville, 450 car drive-in theater, to Tom Griffing, Abilene, Tex., Approx. $60,000.

Ill., Decatur—DRIVE-IN THEATER—Frank Stewart, c/o Family Amusement Co., Danville, 450 car drive-in theater, on Route 121, east of Three Eye league ball park, to Tom Griffing, Abilene, Tex., Approx. $60,000.

Iowa—SUB-STATIONS—Corn Belt Power Co-operative, Humboldt, 16 electrical sub-stations, Belmont, Galt, Britt, Odebolt, Truesdale, Dakota City, Ayrshire, Arlington, Conrad, Rinard, Duncombe, Williams, Rockford, Tripoli and Fredericks, to Langford Electric Co., Inc., 805 Metropolitan Life Bldg., Minneapolis, Minn., $69,975, Bids 12/21, CD 12/12.

N. Y., Bayville—BATHHOUSE, etc.—Bd. Suprvs. of Oyster Bay, Town Hall, Oyster Bay, bathhouse, comfort station, etc. to E. W. Jackson Contr. Co., 24 Kellum Pl., Hempstead, $85,278. Bids 1/24. CD 1/12.

PROPOSED PROJECTS

WATER SUPPLY

Ala., Huntsville—City, WW Imprvs. $750,000 Polglaze & Basenberg, Empire Bldg., Birmingham, consult. engrs. CD 7/24/44.

Ind., Woodburn—City, Norman H. Brenneke, clk., WW. sys., to replace well, $100,000.

Md., Glen Burnie—Sanitary Comrs. Anne Arundel Co., water sys., pumping station, revamping present sys., Round Bay, $100,000; water sys., Marley Park, $200,000. W. C. Munroe, Glen Burnie, ch. engr.

S. D., Mitchell—City, City Hall, enlarging water treating plant, $200,000. Charles A. Trimmer, city engr. CD 3/31/49, under LB.

Tenn., Franklin—City, water supply sys. $500,000. Polk, Powell & Hendon, Stalling Bldg., Birmingham, Ala., consult. engrs.

Tex., Mercedes—City, voted bonds, WW sys. rehabilitation, $162,000; water distr. line extens., $140,000. Sigler, Clark & Winston, Weslaco, consult. engrs. CD 1/3.

Tex., Nixon—City, voted bonds, WW. $265,000. The Marvin Turner Engineers, Nalle Bldg. Annex., Austin, consult. engrs. CD 1/6.

Tex., Pleasant Grove (Dallas P. O.)—South and East Water Dist., Pleasant Grove (Dallas P. O.), WW $450,000.

▲ **Tex., San Angelo**—City, voted bonds, water supply, $500,000; water storage, treatment plant units, $312,728; WW sys. rehabilitation, $950,000; c.i. waterlines and laterals, $850,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 1/18.

Wash., Clarkston—Washington Water Power Co., W. 825 Trent St., Spokane, filtration plant, $225,240.

▲ **Ont., Toronto**—City, H. E. McCallum, mayor, five year waterworks program, incl. 42 in. watermain from site of Parkdale pumping station to Sunnyside and Pearson Aves., $183,000; pump and temporary bldg. at above site, $90,000; 42 in. watermain from R. C. Harris Water Purification and Pumping Station to Queen St. East and Beech Ave. $312,000; 36 in. watermain from Wellington and Portland Sts. northerly to College St. westerly on College St. to Landsdowne Ave. thence southerly and westerly to Sunnyside and and Gearson Aves., $2,200,000; 36 in. watermain from College and Darkham Sts to Bedford Rd and Bernard Ave., $950,000; connecting mains, etc., $100,000, exten. High Level Pumping Station, Dist. 4, $1,240,000; 42 in. watermain from Parkdale Pumping Station northerly on Indian Rd. and Indian Road Crescent to Humberside Ave., $1,116,000; 42 in. watermain from Queen St. E. and Beech St. to Hamilton and Mount Stephen Sts., $2,688,000; contr. Parkdale Pumping Station $1,290,000. M. Stewart, City Hall, city engr. CD 8/16/44.

SEWERS, WASTE DISPOSAL

Calif., Benicia—City, City Hall, $575,000 bond election April 11, sewage disposal plant. CD 12/9/46.

▲ **Calif., San Jose**—City, City Hall, $3,900,000 bond election May 15, sewage treatment plant. CD 10/24/45.

Calif., Santa Rosa—City, City Hall, voted $350,000 bonds, sewage treatment plant. $800,000. Brown, Caldwell & Hyde, 233 Sansome St., San Francisco, consult. engrs. Frank B. Sarles, City Hall, city engr. CD 12/28.

Colo., Denver—City and Denver Co., City and County Bldg., Wellshire Sanitary Sewer Dist., district sanitary sewers, appurtenances. $132,888. Terry Owens, City and County Bldg., city engr.

Minn., Bemidji—City, W. H. Marks, clk., sewer extens., $300,000; sewage disposal plant expansion, $350,000. M. J. Kernanan, city engr.

Minn., Lake Crystal—Village, J. T. Wiger, clk., bond election Mar. 14, sewage disposal plant. $135,000, Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, consult engrs. CD 9/26/45.

▲ **Mo., University City (St. Louis 5, P. O.)**—City, Thomas F. Maxwell, mgr., storm sewer facilities, River des Peres water shed. $2,400,000.

N. Y., Hamburg—Town, Town Hall, sanitary sewerage sys. for Osborne Heights and Sagamore Sewer Dist. $175,000. CD 5/21/45.

O., Loveland—Village, Harry Nordman, clk., Loveland sewage disposal plant, sanitary sewerage sys., throughout village. $400,000. Walter Manion, 914 Main St. Cincinnati, consult. engr.

O., North Bend—Village Robert E. Bixinstine, clk., North Bend, sewage disposal sys. $100,000. Joseph A. Allen, 4638 Glenway Ave., Cincinnati, Zone 38, consult. engr.

Okla., Okmulgee—City, plans by Sullivan & McGoodwin, engrs.-archts., Goshen Rd., Fayetteville, Ark., sewage treatment plant with connecting outfall sewer. (Okla. 34-P-1005). $455,500. Walter Wheatley, city engr. CD 9/29/48.

Ore., Independence-Monmouth — Independence-Monmouth Sewer-Water Dist., City Hall, Independence, voted bonds, sewage treatment plant, $95,000; 2.5 mi. sewer line, $50,000. R. H. Corey, Corbett Bldg., Portland, consult. engr.

Tex., Anahuac—City, Everett H. Cain, mayor, Anahuac, sewer collection sys. and sewage treatment plant. $254,500. Howard, Johnson & Kelley, Scanlon Bldg., Houston, consult. engrs.

Tex., Nixon—City, voted bonds, sanitary sewers. $125,000. The Marvin Turner Engineers, Nalle Bldg. Annex, Austin, consult. engrs. CD 1/6.

Tex., Mercedes—City, voted bonds, sanitary sewer lines. $50,000; sewage disposal plant, $50,000; sanitary sewerage sys. rehabilitation, $100,000. Sigler, Clark & Winston, Weslaco, consult. engrs. CD 1/3.

Tex., Pleasant Grove (Dallas P. O.)—South and East Water Dist., Pleasant Grove (Dallas P. O.)—sanitary sewers, $175,000; storm sewers, $200,000.

Wis., Monona—Village, 3425 Winnequah St., Madison, exten. sewerage sys. $150,000. General Eng. Co., Portage, consult. engr.

Que., Drummondville West—Municipality, Drummondville West, sewerage sys. $100,000. Emile Goulet, Drummondville West, engr.

BRIDGES

▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., and Dallas Co., Courthouse, steel concrete Forest Ave. bridge, approaches, $1,722,000. R. H. Klinger, county engr. J. T. Conroy, city engr.

Tex., Fort Worth—City, W. O. Jones, mgr., City Hall, railroad underpass on University Dr. $250,000. C. M. Thelin, c/o owner, dir. P. Wks. CD 10/11/45.

Wash., Tacoma—City, City Hall, bond election Mar. 14, East D St. Crossing, $700,000; grade separations at Orchard and 12 Sts., on connecting by. to Narrows Bridge from 12 and Tyler Sts. to 6 Ave., and Pearl St., $50,000 each. D. E. Morris, city engr. CD 1/9.

Ont., Wallaceburg — City Council, W. Glendenning, mayor, steel, concrete bridge, Forhan St., approx $100,000. H. Craig, town hall, town engr.

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STREETS AND ROADS

▲ **Tex., Houston**—Harris Co., Courthouse, voted bonds, c. conc. paving 3½ mi. Long Point Road, from Campbell Rd. to Hemphill Hy. $125,000; 1½ mi. Campbell Rd. from Kath Hy. to Long Point Rd., $50,000; 1 mi. 38 St. from N. Shepherd to Golf Dr. $50,000; triple blt. surf. 2½ mi. Jack Rabbit Rd. from Homstead Rd. to Farm-to-Market Road 529, $80,000; special road constr., surf. Precinct 4, $300,000, Hugo Zapp, co. engr.; contract approach roads or bypass roads, vicinity Washburn Tunnel, $1,500,000, Palmer & Baker, Pasadena, consult. engrs.; construct and pave 12.69 mi. Atascocita Rd., $650,000, Howe & Wise, 4119 San Jacinto St., consult. engrs. CD 1/23. CD 1/6.

B. C., Vancouver—City, 453 W. 12 Ave., b. conc. resurf. on Kingsway 62 ft. wide from Main St. to 12 Ave. and 56 ft. wide along Kingsway from 12 Ave. to Joyce Rd., $730,000 b. conc. resurf. various widths along Cordova St. from Carrall St. to Granville St., $137,000; b. conc. resurf along Scott St. from 8 Ave. to Scott St. $51,000; b. conc. resurf. 62 ft. wide along Main St. from Hastings to Powell St. and 61 ft. wide from Powell to Alexander Sts., $41,000; b. conc. resurf. 41 ft. wide along Cordova St. from Carrall to Main Sts., $45,000. J. Oliver, 453 W. 12 Ave., engr. CD 9/28/43.

New Brunswick—Province of New Brunswick, Fredericton.

Quarryville—closing underpass at Quarryville and constr. new Fredericton hy. section from Renous Bridge to Quarryville Bridge, $400,000.

▲ **N. S., Halifax**—Municipality, concrete sidewalks, $300,000; sidewalks renewals, $100,000; street paving, $700,00. F. C. Wood, City Hall, city engr. CD 2/13/46.

Ont., Cornwall—United Counties of Glengarry, Stormont & Dundas, Cornwall, county roads for 1950. Approx. $450,000.

EARTHWORK, WATERWAYS

▲ **O., Cleveland**—Jones & Laughlin Steel Corp., Union Commerce Bldg., 1,070 ft. sheet steel pile bulkhead along steel company's docking area, from 238 ft. upstream from Clark Ave. Bridge. $1,000,000.

LATIN AMERICA

British Guiana, Georgetown—Govt. of British Guiana, Georgetown, plans new Queens College. $350,000. Directorate of Pub. Wks., Georgetown, engr.

British Guiana, Georgetown—Govt. of British Guiana, Georgetown, plans technical institute and rehabilitation of Public Hospital. $700,000. Directorate of Pub. Wks., Georgetown, engr.

Chile, General Cruz—Republic of Chile, Santiago, plans cellulose plant. 250,000,000 Pesos.

Guatemala, Guatemala City—Guatemala Republic, Executive Branch, Guatemala City, plans railway across Guatemala. Ministry of Wks. & Communications, Guatemala City, engr.

Guatemala, Guatemala City—Republic of Guatemala, Ministry of Agriculture, Guatemala City, plans installation pump and pipe irrigation sys. for dry plain of Las Fraguas along the Montagua River in eastern Guatemala. $1,000,000. Ministry of Works & Communications, Guatemala City, engr.

Mexico, Cordoba—Municipal Govt., Palacio Municipal, Cordoba, plans WW. with private subscriptions $250,000.

Mexico, Guerrero—City plans electric lighting sys. $85,000; natural gas sys. $60,000; township streets, incl. circular streets, around Central Plaza in downtown area $200,000; drainage, $50,000; sanitary sewers, $75,000; WW sys. $100,000. Eng. Dpt. P. Wks., Mexico, Mexico, engr.

Mexico, Mexico City—David L. Romero, Baja California, 5, Mexico, D. F., plans radio receiver factory. $400,000.

Mexico, Monterrey—I. M. del S. S., Rosales y Ignacio Mariscal, Mexico, D. F., plans 250 bed hospital. $300,000.

Mexico, Monterrey—Radios Universal, S. A., Padre Mier Oriente, 660, Monterrey, N. L., Mexico, plans radio receivers factory. $400,000.

Mexico, Monterrey—Ing. Alberto Rosaati Rousseau, Domicilio Concocido, Monterrey, N. L., plans elevator factory. $600,000.

Mexico, Piedra Parada—Mexican Govt., Srla. de R. H., Balderas, 94, Mexico, D. F., Mexicio, plans irrigation dam. $150,000.

PUBLIC BUILDINGS

Ariz., Casa Grande—SCHOOL—Casa Grande School Dist., City Hall, 15 classrooms and administrative office elementary school adn., $220,000; 830 seat auditorium, $120,000.

Calif., McKinleyville—SCHOOL—McKinleyville Elementary School Dist., McKinleyville, plans by Ernest Frederick Winker, 251 Post St., San Francisco, 10 classroom school, $250,000.

▲ **Calif., Torrance**—SCHOOL—Torrance Elementary School Dist., Torrance, $1,000,000 bond election Mar. 21, school. Daniel, Mann & Johnson, 672 S. La Fayette Park Pl., archts. CD 9/29.

▲ **Calif., Torrance**—SCHOOL—Torrance High School Dist., Torrance, $1,000,000 bond election Mar. 21, school. Daniel, Mann & Johnson, 672 S. La Fayette Park Pl., archts. CD 9/29.

▲ **Colo., Trinidad**—GAS PLANT, etc.—City, Ray Nixon, mgr., City Hall, natural gas plant, pipe line and gas distr. $1,100,000.

Conn., Hamden—LIBRARY—Town, Bd. Selectmen, Town Hall, plans by Henry S. Kelly, 282 York St., New Haven, 2 story, brick library, Dixwell Ave. $250,000.

Conn., Ridgefield—SCHOOL—Town, Bd. Selectmen, Town Hall, 2 story, bmsnt., brick, steel school, East Ridge. $350,000.

Conn., Seymour—HOUSING—Town, Seymour Housing Auth., A. Schermer, secy., plans by Jacob Weinstein, 100 Lowin Ave., New Haven, frame houses, $250,000.

Conn., Shelton—SCHOOL—Town, Bd. Selectmen, Town Hall, brick, steel school, 8 classrooms, also small auditorium and kindergarten, Sunnyside Park. $250,000.

Conn., Enfield—SCHOOL—Town, F. W. Olschafskie, clk., Town Hall, 10 room, brick, concrete school Route 5, $250,000.

Conn., Thompson—SCHOOL—Town, J. J. Ryscavage, supt. of Schools Thompson, plans by Carl J. Malmfeldt & Assoc., 36 Pearl St., Hartford, brick, concrete school, $350,000. CD 2/11

Conn. Willimantic—COLLEGE—State, Dr. Finis E. Engleman, comr. Education, State Office Bldg., Hartford, plans by Reinhardt & Olson, 171 Washington St., Hartford, brick steel early childhood teachers bldg., utility unit, Willimantic State Teachers College, $250,000.

Del., Claymont—SCHOOL—Claymont Special School Dist., Claymont, school, $400,000.

Del., New Castle—SCHOOLS—New Castle Special School Dist., New Castle, plans by E. William Martin, 830 West St., Wilmington, New Castle School, $450,000; Wilmington Manor School, $450,000. CD 11/2.

Fla., Miami—HOUSING—Miami Housing Auth., c/o Steward & Skinner, archts., 223 S. E. 1 St., 500 negro housing units, N. W. 54 St. Approx. $250,000. Maurice H. Connell & Assoc., 200 Langford Bldg., consult. engrs. CD 11/22.

Fla., Orlando—HOUSING—Orlando Housing Auth., Orlando, 300 housing units. Approx. $250,000.

Ga., Cartersville—HIGH SCHOOL—City plans by Francis M. Daves & Assoc., 57 8 St. N. E., Atlanta, high school, $400,000.

▲ **Idaho, Pocatello**—COURTHOUSE—Bannock Co., Courthouse, plans courthouse. $1,000,000.

▲ **Ill., Chicago**—HOUSING—Chicago Housing Auth., 343 S. Dearborn St., Zone 4, 9,900 unit public housing program under federal housing program, Site 1, Division-Orleans Larabee Site 2, Washburne, Blue Island and 15; Site 3, Cottage Grove, South Park, 35; Site 4, Root, 43, Halsted; Site 5, 44, 47, Cicero; Site 6, 103, Oglesby and C&W. I.R.R.; Site 7, Morgan, 115 and 119, $100,000,000.

†**Ill., Chicago**—HOSPITAL—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash., 25, D. C., plans by Schmidt, Garden, Erickson, 104 S. Michigan St., Zone 3, 15 story, 300x650 ft., steel, concrete, brick research hospital, Erie, Huron, Fairbanks Ct. and McClurg St. $6,000,000.

▲ **Ill., Tinley Park**—HOSPITAL—State Div. Architecture & Engineering, Springfield, plans by C. Herrick Hammond, 53 W. Jackson St., Chicago, Zone 4, Illinois State Mental Hospital approx. 350 acres between Harlem Ave. 80 Ave. and 183 St. and Chicago Rock Island and Pacific R.R., near here. $20,000,000. Skidmore Owings & Merrill, 100 W. Monroe St., Chicago, Zone 3, consult. engrs. CD 11/11.

Ia., Des Moines—SCHOOL—Ind. School Dist., Des Moines, plans by Tinsley, Higgins & Lighter, 526 Liberty Bled., Des Moines, Junior High School, 7 St. and Indiana Ave. $300,000. CD 2/1/45.

Ia., Jefferson—SCHOOL—Bd. Educ., Jefferson, voted $322,000 bonds, Jan. 18, auditorium-gymnasium, addnl. classrooms, etc. high school addns. and grade school addn., $462,000.

Kan., LaCrosse—GYMNASIUM—Bd. Educ., LaCrosse plans by Hibbs & Robinson, 519 S. Broadway, Wichita, gymnasium. $250,000 bond election Feb. 3.

Kan., Manhattan—HEALTH CENTER—State Bd. Regents, Nat'l Bank of Topeka Bldg., Topeka, plans by C. L. Marshall, state archt., c/o owner, Topeka, health center at Kansas State College, $250,000.

▲ **Ky., Newport**—HOUSING—Newport Municipal Housing Comn., Peter Knoll, secy., 605 Finance Bldg., 4 and York Sts., plans by Meriwether, Marye & Assoc., 236 E. Short St., Lexington, approx. 10 story, bsmnt., 800 unit, brick, concrete, steel, apartment, $8,000,000.

Md., Aberdeen—SCHOOL—Harford Co. School Bd., Chas. W. Willis, supt., Courtland St., Bel Air, Aberdeen Junior-Senior High School, on 50 acre tract off Bel Air Rd., between Paradise Rd. and Baker St., $600,000.

▲ **Md., Baltimore**—COURT HOUSE—City, Bureau of Bldg. Constr., 410 Municipal Bldg., plans by Hal A. Miller & Assoc., 2118 Maryland Ave., 6 story, 263,000 sq. ft., granite, marble, court house addns., alterations. $1,000,000. Egli & Gompf, Inc., 1019 N. Calvert St., mech. engr. Henry Adams, Inc., 130 W. Hamilton St., consult. engr. Faisant & Kooken, 2017 Maryland Ave., structural engr. R. E. L. Williams, 410 Municipal Bldg., Bldg. Constr. Engr.

▲ **Md., College Park**—LIBRARY—University of Maryland, Dpt. P. Imprvts., 506 Park Ave., Baltimore, library. $1,875,200. CD 11/2.

Md., Middletown—SCHOOL—Bd. Educ., Frederick Co., Frederick, plans by Ross, Walton & Hofstetter, 2114 N. Charles St., Baltimore, 1 and 2 story, 300x380 ft., brick, concrete, steel Middletown High School, $700,000.

Md., Princess Anne—COLLEGE BLDGS.—Maryland State College, Div. University of Maryland, Dpt. Imprvts., 506 Park Ave., Baltimore, library, $325,000; home economics bldg., $250,000; men's field house and gymnasium, $257,512; warehouse, $50,000.

Mass., Brockton—SCHOOL—City, E. A. Nelson, supt. schools, City Hall, 2 story, bsmnt., brick, steel West Side Junior High School, $500,000.

Mass., Lynn—SCHOOL—City, Bd. Educ., 42 Franklin St., plans by Perley F. Gilbert Assoc., Inc., 10 Central Ave., brick, steel, concrete Classical High School addn. $950,000.

Mass., Quincy—PLANT—Commonwealth of Mass., Dpt. Conservation and Fisheries, 15 Ashburton Place, Boston, plans by Anderson & Beckwith, 11 Beacon St., Boston, rein.-con. shellfish purification plant, Proj. F-203. $110,000.

Mass., Whitman—SCHOOL—Town, Bd. Educ., Whitman, plans by Adden Parker Clinch & Crimp, 177 State St., Boston, 2 story, bsmnt. brick school, $250,000.

Minn., Appleton—HOSPITAL—Village, C. G. Johnson, clk., voted $130,000 bonds Dec. 27, 20 bed municipal hospital, $250,000. H. H. Swanson, 500 Sexton Bldg., Minneapolis, archt.

Minn., Barnesville—PLANT—City, M. Trovaten, clk., municipal electric generating plant, $178,632. General Eng. Corp., 2950 Chicago Ave., Minneapolis consult. engrs. CD 1/26.

Minn., Waterville—SCHOOL—Bd. Educ., c/o Clerk, plans by Foss & Co., Moorhead, 2 story, bsmnt., high school adn. $250,000.

Miss., West Point—HOUSING—West Point Housing Auth., 100 to 200 housing units, Approx. $500,000, Williamson Archer, 210 W.M.O.X. Bldg., Meridian, consult. engr.

Mont., Kalispel—SCHOOL—School Dist. 5, Kalispel Elrod School, $300,000.

Mont., Townsend—SCHOOL—School Dist. 7, plans by F. W. Willson, Bozeman, school, $275,000.

N. M., Albuquerque—BOILER PLANT, etc.—Bernalillo Co., Albuquerque, plans by Gordon, Ferguson & Assoc., Albuquerque, boiler plant, $200,000; laundry plant, $100,000. Golemon & Rolfe, 915 Woodrow St., Houston, Tex., consult. engrs.

N. D., Fargo—LIVESTOCK—State Bd. Educ., Bismarck, plans by H. E. Bechtel, 19 Broadway, livestock bldg. at North Dakota State Agricultural College. $260,000. CD 12/16/48.

Ore., Oswego—HIGH SCHOOL—Union High School Dist. 7, Oswego, plans by Dougan, Heims & Caine, Terminal Sales Bldg., Portland, high school, 2 mi. west of here. $500,000.

Ore., Salem—SCHOOL—State Bd. Control, Capitol, Salem, plans by Wolff & Phillips, Fourth Ave. Pearson Bldg., Portland, school at State School for Blind. $300,000.

Pa., California—DORMITORY, etc.—General State Auth., 18 and Herr Sts., Harrisburg, men's dormitory, $263,000; auditorium, $263,200 at California State Teachers College. A. F. Jones, c/o owner, ch. engr.

Pa., Clarion—BOILER PLANT—General State Auth., 18 and Herr Sts., Harrisburg, boiler plant at Clarion State Teachers College. $462,000. The Chester Engineers, 210 E. Park Way, Pittsburgh, consult. engrs. A. F. Jones, c/o owner ch. engr. CD 12/9.

Pa., Montoursville—POLICE BARRACKS—General State Auth., 18 and Herr Sts. Harrisburg, plans by Wagner & Wagner, Williamsport, state police barracks, garage and examination field for Pennsylvania State Police. $250,000. A. F. Jones, c/o owner, ch. engr. CD 1/30.

▲ **Pa., Phila.**—SCHOOLS—Bd. Educ., 21 and Winter Sts., school, Northwest Sect. $1,000,000; Junior High School, 11 and York Sts., $2,500,000; school, 22 and Diamond Sts., Approx. $750,000; school alterations addns., 38 St. and Powelton Ave., Approx. $350,000; school, Holme and Willets Aves., $1,000,000; school, Princeton and Summerdale Aves., $1,000,000.

Pa., Torrance—EXERCISE ROOMS—General State Auth., 18 and Herr Sts., Harrisburg, plans by Sorber & Hoone, First Natl. Bank Bldg., Greensburg, exercise rooms in bldgs. for male and female disturbed patients at Torrance State Hospital. $480,000. A. F. Jones, c/o owner, ch. engr. CD 12/19.

Pa., Warren—CHAPEL, etc.—General State Auth., 18 and Herr Sts., Harrisburg, plans by Hanna & Stewart, Meadville, chapel, auditorium, recreation bldg. at Warren State Hospital. $600,000. A. F. Jones, c/o owner, ch. engr. CD 7/11.

† **R. I., Newport**—SCHOOL, etc.—Pub. Wks. Officer, 495 Summer St., Boston, Mass., school alterations, Reserve Officers training, $100,000; mess hall alterations, imprvs., U.S. Naval Base, Approx. $10,000.

R. I., Warwick—SCHOOL—City, Joseph Mills, mayor, City Hall, brick, steel school, Killey and Bugbee Aves. $250,000.

▲ **Tex., Center**—HOUSING—Housing Auth., Center, 200 low rental housing units. $1,400,000.

▲ **Tex., Gladewater**—HOUSING—Gladewater Housing Auth., Gladewater, 200 low rental housing units, $1,400,000.

Tex., Gainesville—SCHOOL—State Bd. Control, Austin, (Youth Development Council, Austin, sponsors), State Correctional School. $250,000.

Tex., Gatesville—BUILDING—State Bd. Control, Austin, (Youth Development Council, Austin, sponsors), building for State Correction School. $250,000. CD 1/4/49.

Tex., Goliad—SCHOOL—Goliad Independent School Dist., Goliad, voted bonds, school, gymnasium, $250,000.

Tex., Henderson—SCHOOLS—Henderson Independent School Dist., Henderson, voted bonds Jan. 24, masonry school addn., $400,000; high school, $350,000. Pres-

(Continued on page 94)

American Bridge erects an 88-ton, 140′ long plate girder span over the Chesapeake and Ohio Railway tracks in the yards of The Dow Chemical Company, Midland, Michigan. This structure was erected without hindering rail traffic. Darin & Armstrong, Inc., General Contractors; L. W. Millard, Consulting Engineer.

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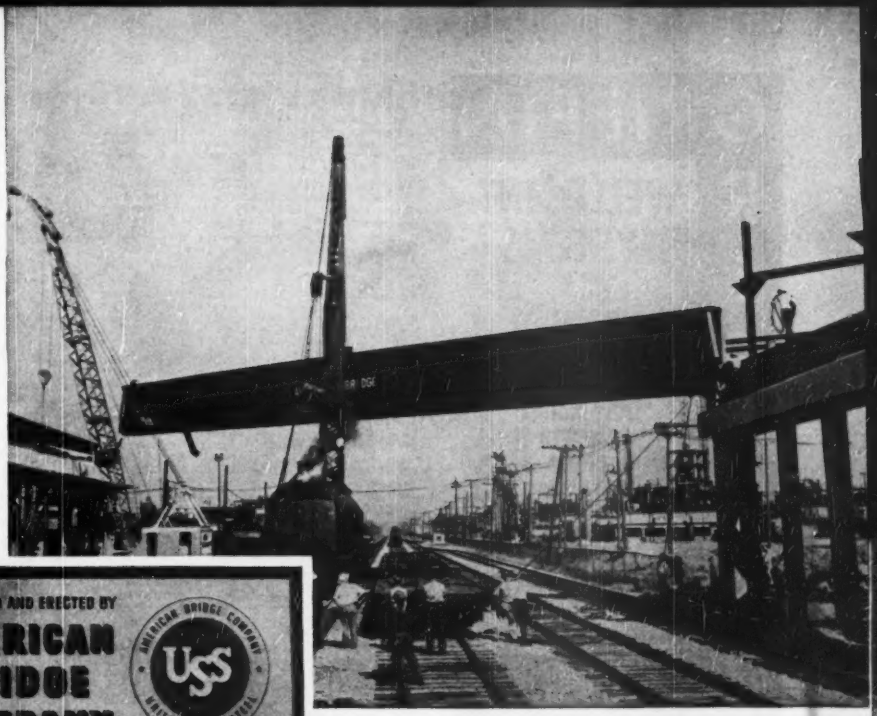

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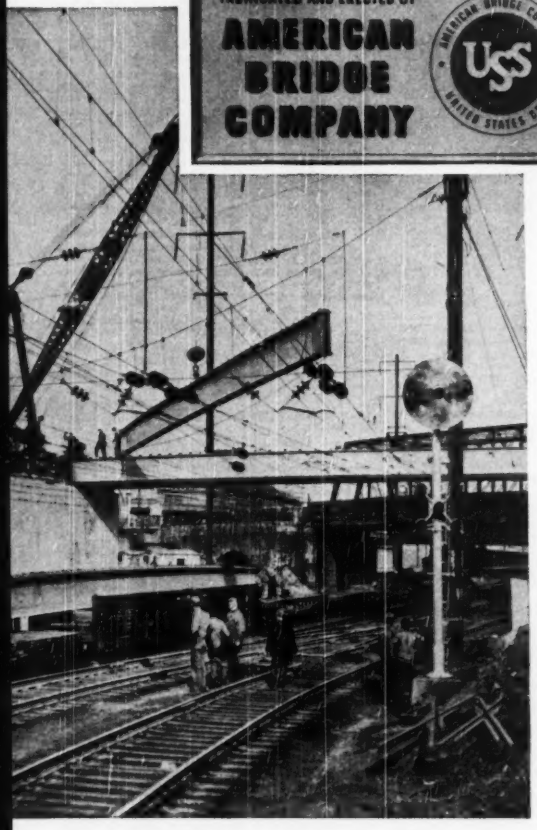

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(Continued from page 92)

ton M. Geren, 905 N. P. Anderson Bldg., Fort Worth, archt.

▲ **Tex., Houston** — HOSPITAL — City, City Hall, 900 Brazos St., and Harris Co., Courthouse voted bonds, charity hospital. $7,500,000. Alfred C. Finn, Bankers Mortgage Bldg., archt. H. E. Maddox & C. E. Johnson, 3501 Buffalo Dr., assoc. archts. CD 1/6.

▲ **Tex., Houston**—POLICE STATION, etc.—City, City Hall, 900 Brazos St., voted bonds, central police station and jail. $2,850,000. Kenneth Franzheim, 2306 Crawford St., archt. CD 1/6.

Tex., Kaufman — HOUSING — Kaufman Housing Auth., Kaufman, 75 low rental housing units, $525,000.

Tex., Palestine—HOUSING—Palestine Housing Auth., Palestine, 125 low rental housing units, $875,000.

Tex., San Antonio — HOUSING — San Antonio Housing Auth., 419 S. St. Marys St., plans by O'Neal & Ford & Jerry Rogers, Willow Way, 1,500 low rental housing units, 1st year, 1,500 low rental housing units, 2nd year. CD 10/24.

▲ **Tex., San Antonio**—SCHOOLS—San Antonio Independent School Dist., Lavaca and Winter Sts., plans by Phelps & De Wees & Simmons, 1501-6 Majestic Bldg., addnl. school, Los Angeles Heights area, $250,000; Thomas Jefferson High School remodeling and adns., $500,000; Main Ave. Vocational and High School remodeling, addns., $350,000; reconstruct De Zavala School, masonry, concrete frame and slab fdn., brick constr. $450,000; Public School, southeastern sect. of city, $250,000; Public School, W. Huisache and Wilson Sts. $250,000; masonry Japhet and Hidalgo school replacement, $275,000; elementary school classrooms, $372,000; cafeteria, $335,000; gymnasium playing units, $850,000; Brackenridge High School remodeling, addn., $500,000.

▲ **Tex., San Antonio**—BUILDINGS—San Antonio Union Junior College, S. Alamo St., plans by Phelps & De Wees & Simmons, 1515 Majestic Bldg., health-education, $250,000; Junior College Administration (Negro), $375,000; heating plant, $200,000; administrative, $300,000; addnl. classrooms, $375,000; St. Phillips College, $500,000; gymnasium, (San Pedro site). $400,000. CD 1/27.

Tex., Victoria—SCHOOL—Victoria Independent School Dist., Victoria, plans by Jessen, Jessen, Millhouse & Greeven, 112 E. 9 St., Austin, and Kal J. Lefflard, consult. archt., Victoria school. $300,000. CD 10/28.

Va., Newport News—HOUSING—Newport News Housing Auth., Newport News, 600 housing units.

Wyo., Cheyenne—PARKING—City, parking bldg. $275,000.

Wyo., Kalispell—SCHOOL—School Dist. 5, Kalispel Elrod Elementary School, $300,000.

▲ **Alaska, Sitka**—SCHOOLS—School Bd., Sitka, plans by W. A. Johnson & Assoc., First Natl. Bank Bldg., Everett, Wash., high school, $800,000; grade school, $500,000; gymnasium, $350,000.

B. C., Vancouver—SCHOOL—Province of British Columbia, Parliament Bldgs., Victoria, plans by Clive Campbell, Parliament Bldgs., Victoria, 1 and 2 stor; concrete H-shaped school for deaf and blind, $350,000.

Man., St. Boniface—SCHOOL—School Bd., St. Boniface, plans by Smith, Munn & Assoc., 408 Tribune bldg., Winnipeg, school, $300,000.

N. B., Chatham—ARMORY—Government of Canada, Ottawa, armory. $350,000. Dpt. National Defense, Cartier Sq., Ottawa, Ont., archt.

N. B., East St. John—HOSPITAL—Municipality surgical ward and nurses residence at St. John Tuberculosis hospital, $300,000.

Ont., Brantford—SCHOOL—Bd. Educ., J. Swintore, secy., Brantford, secondary school (collegiate). Approx. $300,000.

Ont., Kincardine—SCHOOL—Bd. Educ., Kincardine, remodeling school, $250,000. CD 1/3.

▲ **Ont., Ottawa**—OFFICE—Central Mortgage & Housing Corp., No. 4 Temporary Bldg., plans by G. Brault, Dpt. P. Wks., Hunter Bldg., 4 story, bsmnt. public office bldg., Montreal Rd. about 1 mi. west of Research Council laboratories on south side of road, about 1 mi. east of Eastview. Approx. $1,000,000.

Ont., Owen Sound — HOUSING — Owen Sound Housing Corp., Ltd., c/o E. S. Sargent, mayor, City Hall, five 8 unit apartments. Approx. $250,000.

Ont., Toronto—SUB-STATION—Municipality, transformer sub-station, John St. $100,000. Hydro-Electric Comn., 14 Carleton St., engr.

Que., Sherbrooke—POWER HOUSE—City, A. Deslaurers, city clk., addnl. 10,000 hp. power house at Brompton-ville. Approx. $850,000. G. Masse, c/o owner, engr. Crepeau, Cote & Lemieux, 45 Wellington St. N., Sherbrooke engrs. CD 10/20.

COMMERCIAL BUILDINGS

▲ **Ariz., Phoenix** — SHIPPING CENTERS, etc. — Albert Behrstock, Ralph G. and A. J. Burgbacher c/o Cavanaugh Realty Co., 1315 N. Central Ave., shopping centers, medical center, residences, development of 125 acre tract. $25,000,000.

Calif., Los Angeles—CLINIC, etc.—University of Southern California, 3551 University Ave., plans by Kaufmann & Stanton, 627 S. Carondelet St., 2 story, brick, concrete clinic and infirmary. $300,000. C. Raimond Johnson, 3551 University Ave., archt.

Colo., Denver—HIGH SCHOOL—Parish of Our Lady of Mt. Carmel, 3549 Navajo St., plans by Temple H. Buell & Co., engrs. and archts., 730 14 St., 2 story, 16 classroom, brick high school. $250,000. CD 4/22/48.

Del., Seaford—HOSPITAL—Nanticoke Memorial Hospital, Inc., Seaford, plans by Raymond R. Chatfield, 423 W. Chelten Ave., Phila., Pa., hospital. $429,500.

▲ **Fla., Miami**—STORE—Richards Dept. Store, 1 N.E. 1 St., plans by Steward & Skinner, 223 S.E. 1 St., 70,000 sq. ft. dept. store addn. $1,000,000. Maurice H. Connell & Assoc., 200 Langford Bldg., consult. engrs.

Ill., Chicago—OFFICE—Occidental Office Bldg., Washington and N. Wacker Dr., plans by Travelletti & Suter, 39 S. LaSalle St., alterations and repairs 3 story bldg., Wacker Dr. $350,000.

Ill., Chicago—CONVENT—St. Tarcissus Parish, 6020 W. Ardmore, plans by Barry & Kay, 53 W. Jackson St., Zone 4, 2 story, 25,000 sq. ft., steel, concrete brick convent. $250,000.

Ill., Naperville—Y.M.C.A. ADDN.—Y.M.C.A., 34 S. Washington St., plans by Philip D. West, 185 N. Wabash St., Chicago, Zone 1, 3 story, brick, concrete, steel Y.M.C.A. Bldg. addn. $250,000.

Ia., Oelwein—HOSPITAL—Mercy Hospital, Sisters of Mercy, plans by J. L. Christie, 14 N. Kingshighway, St. Louis, Mo., hospital addn., $300,000. CD 1/27.

Kan., Wichita—HOTEL—Allis Hotel Co., 200 S. Broadway, plans by Overend & Boucher, Brown Bldg., hotel addn. $500,000.

Me., Orono—STUDENT UNION—University of Maine, Raymond H. Fogler, chn. Union Bldg. Fund Comn., Orono, plans by Cram & Ferguson, 248 Boylston St., Boston, Mass., 3 story, bsmnt., Student Union Bldg., on Camp East of Library. Approx. $900,000.

Md., Baltimore—RESIDENCES—Julius Myerberg, 302 Park Ave., forty-six 2 story, bsmnt., 70x100x150 ft., brick, irregular shaped, residences. $350,000.

Md., Glen Burnie—RESIDENCES—Banks & Lee, Inc., Tower Bldg., 14 and K Sts. N.W., Wash., D. C., plans by Benjamin Rush Stevens, 927 15 St., N.W., Wash., D.C, 200 residences

Mass., Boston—CONVENT—Our Lady of Mt. Carmel R. C. Parish, Louis Link, pastor, 128 Grove St., plans by Thomas F. McDonough, 25 Huntington Ave., 3 story, brick, concrete, convent, Grove St., East Boston Section. $250,000.

Mass., Brockton—SCHOOL—St. Margaret's R. C. Parish, John J. O'Connor, pastor, 917 Montello St., 2 story, bsmnt., brick, concrete, parochial school, Main and Montello Sts. $300,000.

Mass., Dorchester—SCHOOL—St. Kevins R. C. Parish, A. C. Dalton, pastor, 35 Virginia St., plans by Wm. J. Edwards, 126 State St., Boston, 2 story, bsmnt., brick parochial school addn., Columbia Rd. $250,000.

▲ **Mass., Lynn**—Y.M.C.A. BLDG.—Y.M.C.A., Robert T. Pender, pres., 33 Sutton St., brick, steel, concrete, Y.M.C.A. Bldg. $1,200,000.

Mass., Salem—SCHOOL—St. Thomas the Apostle R. C. Parish, J. V. Cronin, pastor, 1 Marginal St., Peabody, plans by John M. Gray Co., 175 High St., Boston, brick, steel parochial school, $250,000.

Mass., West Roxbury—SCHOOL—Holy Name R. C. Parish, Charles A. Finn., pastor, 1689 Center St., plans by Perry Shaw & Hepburn, 31 St. James Ave., Boston, 2 story, bsmnt., brick, steel parochial school. $400,000.

Mich, Detroit—HOSPITAL—Kercheval Cottage Hospital, 159 Kercheval St., plans by Smith, Hinchman & Grylls, 800 Marquette Bldg., masonry, structural steel, hospital addn. $750,000.

Minn., Sleepy Eye—SCHOOL—Church of St. Mary's, Rev. A. J. Koller, plans by A. J. Ross & Assoc., Mankato, 2 story, bsmnt., 60x140 ft., brick, stone, school addn. $300,000.

Mo., Kansas City—HOTEL, etc.—Massman Constr. Co., 71 By-Pass, 12 story office bldg., hotel, Wyandotte and 13 Sts.

▲ **Mo., St. Louis**—CHEMISTRY—Washington University, c/o Arthur H. Compton, chancellor, Admin. Bldg., Skinker and Forsyth Blvd., Zone 5, plans by Jamieson & Spearl, 1696 Arcade Bldg., 812 Olive St., Zone 1, 3 story, bsmnt., Missouri red granite and rein.-con. chemistry bldg., modernization of Busche Hall Chemistry Bldg. Approx. $1,000,000. CD 11/29.

Neb., Omaha—SCHOOL—St. Margaret Mary's Parish, 525 N. 64 St., plans by Leo A. Daly, Co., 629 Insurance Bldg., school. $400,000.

N. J., Madison—DORMITORY—Drew University, Madison, apartment dormitory to house 90 students. $425,000.

▲ **N. M., Albuquerque**—COLLEGE—Poor Sisters of St. Francis Seraph, Albuquerque, plans by John K. Monroe, 400 Security Life Bldg., 810 14 St., Denver, Colo., brick, concrete, steel frame catholic teachers college, concrete pier and beam fdn. $1,000,000.

N. Y., Brooklyn—APARTMENT—Noah Benjamin, 763 Ocean Parkway, Zone 30, plans by Lama Proskauer & Prober, 383 Pearl St., Zone 1, 6 story apartment, 1119-39 Ocean Parkway. $450,000.

N. Y., Brooklyn—HOSPITAL—Norwegian Hospital, 4520 Fourth Ave., Zone 32, 6 story hospital addn., Fourth Ave. and 45 St. $750,000.

N. Y., New York—APARTMENT—C. L. Holding Corp., 1271 St. Nicholas Ave., Zone 33, plans by Albert & Sidney Goldhammer, 6 Varick St., Zone 13, apartment, 899-905 Eighth Ave. $375,000.

O., Cincinnati—APARTMENT—David Fabe, 604 2nd Natl. Bank Bldg., 9 and Main Sts., plans by George H. Godley, 918 E. Court St., 9 story, bsmnt., brick, concrete apartment.

▲ **O., Cincinnati**—RESIDENCES—Paul & Nelson, 1203 North Bend Rd., Zone 24, ninety-five, 1½ story bsmnt, brick residences, Clovernoll Lane, North College Hill. $1,000,000.

▲**O., Cincinnati**—RESIDENCES—Wood Realty Co., Knollwood and Brushwood Sts., plans by Lee Firth, 3040 Madison Rd., fifty-six 1½ story, bsmnt., residences, Springfield Twp., $840,000; fifty 1½ story, bsmnt., 24x43 ft. brick residences, Van Zant Rd. and New St., $550,000.

O., Shaker Heights—CHURCH BLDG.—Plymouth Congregational Church, Coventry and Weymouth Rds., plans by Garfield, Harris, Robinson & Schafer, 1740 E. 12 St., Cleveland, two wing addn. to present edifice, incl. nursery, playroom, 20 classrooms, enlarged youth center and Boy Scout room. $500,000.

O., Toledo—HOSPITAL—Toledo Catholic Diocese, Bishop Karl J. Alter, 2544 Parkwood St., plans by Robert J. Reilly, 45 W. 45 St., New York, N. Y., hospital, Wheeling St. and Navarre Ave., East Toledo. $1,000,000. CD 9/27/48.

Pa., Butler—APARTMENT—Louis Marhoefer, 829 Industry St., Pittsburgh, Zone 10, 25 two story brick masonry garden type apartments, incl. play areas, parking lots, etc. to be known as Lumar Village, on McKean St. $858,600.

Pa., Phila.—AUDITORIUM, etc.—Congregation Emanu-El, York Rd. and Stenton Ave., plans by Sydney Jellinek, 926 Walnut St., auditorium and chapel wing addns. $250,000. CD 10/24/46.

Tex., Brownsille—HOTEL—El Rancho Grande Hotel, c/o Richard Gill, Gunter Hotel, San Antonio, plans by Frank W. Green, 416 N. Glendale Ave., Glendale, Calif., 1 story, tropical style, masonry, hotel, air-conditioning, outdoor tile swimming pool, etc. $650,000.

Tex., Alice—HOUSING—Ed Collins & Sidney A. Sparks, Alice, plans by Glenn C. Wilson, 1510 Majestic Theatre Bldg., San Antonio, 6 frame, brick veneer apartments, concrete slab fdns. $250,000.

Tex., Dallas—HOSPITAL—Childrens Hospital of Texas, 2306 Welborn St., 50 bed childrens tubercular hospital. $300,000.

Tex., Dallas—HOUSING—East End Development Co., 3908 Main St., plans by F. Perry Johnston, 3908 Main St., Houston, addnl. frame housing, concrete slab fdns., Freeway Addn. $250,000.

Tex., Fort Worth—CHURCH etc.,—Travis Avenue Baptist Church, 3041 Travis St., plans by Joseph H. Gaylord, 503 Neil P. Anderson Bldg., masonry church and educational, concrete pier and beam fdn. $250,000. CD 4/27/45.

Tex., Houston—RESIDENCES—B. A. Gilbert & Dealy Smallwood, 5601 Airline Dr., 76 cedar shake, brick trim, residences, concrete slab fdn., North Park addn., east of Zabel Rd. west of Jones Rd. on Little White Oak Bayou. $532,000.

▲ **Tex., Houston**—COMMERCIAL—Gulf Building Corp., Gulf Bldg., plans by A. C. Finn, Bankers Mortgage Bldg., 16 story bsmnt, steel, brick, stone commercial bldg., concrete pier and beam fdn., air-conditioning, Travis and Capitol Sts. $2,500,000. Robert J. Cummins & Reginal F. Taylor, Bankers Mortgage Bldg., consult. engrs.

▲ **Tex., Houston** — MERCANTILE — Main-Texas Corp., Main St., plans by Sidney H. Morris & Assoc., 134 N. LaSalle St., Chicago, Ill., 2 story (ultimately 15 story), bsmnt., mercantile bldg., on site of existing 6 story Binz Bldg., $500,000; 10 upper stories to existing 2 story, bsmnt., mercantile. (for late 1950 after completion of 2 story bsmnt. project), $1,750,000. Robert J. Cummins & Assoc., Bankers Mortgage Bldg., consult. engrs.

▲ **Tex., Houston**—DWELLINGS—Scott Terrace Housing Corp., c/o Morris Nadelman, 6016 Scott St., 100 frame dwellings near O. S. T. Theater, $700,000; 125 frame dwellings, adjacent Old Spanish Trail Rd. $950,000.

Tex., Houston—DWELLINGS—Sunset Homes, Inc., c/o Forest Oaks, 108 frame dwellings, concrete slab fdn. $750,000.

Tex., San Antonio—DWELLINGS—Johnnie Chuoke, 1001 Austin St., 35 frame, austin cut stone or rock trim addnl. dwellings, concrete slab fdn., Garrity Rd., east of Broadway. $300,000.

Tex., San Antonio—DWELLINGS—H. B. Zachry Properties, Box 2570, 50 ranch type, rock, brick dwellings, in Larkwood sub-division, in Terrell Hills, $600,000; 25 brick dwellings, concrete slab fdn., (2nd phase of constr.) in Terrell Hills, $275,000.

Tex., Yoakum—THEATRE—Cole Theatres, Inc., Yoakum, plans by Ernest L. Shult, 5009 Farnin St., Houston, uptown theatre and drive-in theatre. $250,000.

Alaska, Anchorage—APARTMENT—Dr. L. J. Hines & Assoc., Anchorage, 59 unit apartment. $750,000.

▲ **Utah, Salt Lake**—HOSPITAL—St. Mark's Hospital, 2nd West and 7th North Sts., plans by Ware & McClenahan, Utah Savings & Trust Bldg., enlarge and modernize hospital. Approx. $1,000,000.

Wash., Seattle—DUPLEXES—Parkside, Inc., c/o Stanley Long, 1102 25 Ave. N., plans by J. I. Mattson, Lowman Bldg., Zone 4, 25 frame, masonry some with bsmnts., duplexes, $450,000.

▲ **Wash., Spokane**—SHOPPING CENTER—Terrace Town Community Center, Radio Center bldg., plans by McClure & Adkinson, Hyde Bldg., community shopping center, $2,000,000.

Wis., Eau Claire—CHURCH—St. Johns Lutheran Congregation Eau Claire, church, $275,000-$300,000.

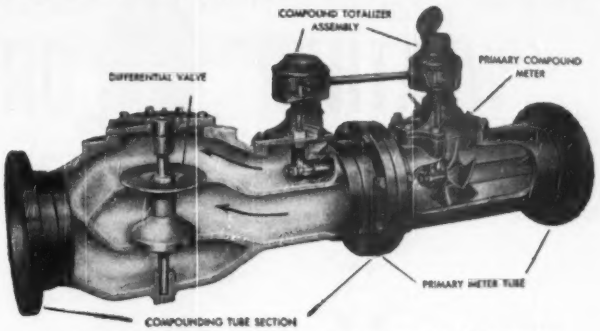
Wis., La Crosse—APARTMENT—Owner, c/o F. J. Hinton, archt., 1721 N. Water St., Milwaukee, Zone 2, 8 story, 103 unit, 50x117 ft., and 50x105 ft., rein.-con., steel, brick apartment. $900,000.

Wis., Racine—CHURCH—Calvary Memorial Church, Rintze and Hayes Aves., plans by H. C. Haeuser, 2051 W. Wisconsin Ave., Milwaukee, Zone 3, 89x170 ft., native and Bedford stone church. $502,000.

▲ **Alaska, Anchorage**—APARTMENTS—T. Brady, 707 Spokane St., Seattle, Wash., plans by D. N. McDonald, 4719 University Way, Seattle, Zone 5, Wash., two 12 story apartments. $1,500,000 each.

(Continued on page 97)

SPARLING MAIN-LINE METERS



Differential valve cracks at about one pound per square inch back pressure from the smaller meter. The smaller meter measures all flows below the minimum accurate range of the larger meter. Both meters drive through rachet clutches to a common totalizer, which thus operates with the faster turning meter.

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Low Pressure Loss

With a Sparling Compound Meter you are assured of Measurement accurate within 2 per cent over flow-ranges as wide as 1 to 125. Sizes, 6-inch to 36-inch.

Important, too, are high conservation of pressure in the line, the single totalizer for easy reading, and the elimination of sharp cutover point between the two elements!

Quotations and Bulletin 310 come at your request.

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726 Reserve Loan Life Bldg.DALLAS 1
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Steel • Pipe • Timber

ALSO: SOIL AND ROCK BORINGS

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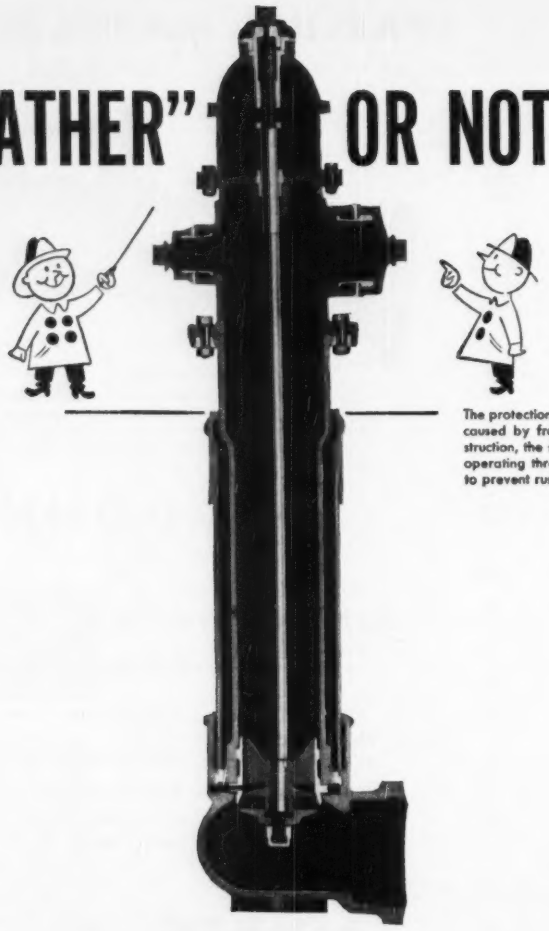
"WEATHER" OR NOT



The protection case is free to move with ground heaves caused by frost. Complete drainage, leakproof construction, the shield operating nut, and location of the operating thread above the stuffing box, all combine to prevent rust or ice from forming.

MATHEWS HYDRANTS

Made by R. D. WOOD COMPANY
Public Ledger Building, Independence Square, Philadelphia 5, Pa.
Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

THE FIREMAN'S FRIEND

Mathews Modernized Hydrants Set the Pace: Easily maintained, because simple in construction • All working parts contained in replaceable barrel • Stuffing box cast integral with nozzle section • Replaceable head • Head can be turned 360° • Nozzle sections easily changed • Nozzle levels raised or lowered without excavating • Protection case of "Sand-Spun" cast iron for extra strength, toughness, elasticity • Operating thread only part to be lubricated • A modern barrel makes an old Mathews good as new

(Continued from page 95)

Alaska, Seward—HOTEL—T. O. Orthman, Seward, 60 room resort hotel at Lake Kenai. $600,000.

Alaska, Sitka—APARTMENT—Cathedral Building Corp., Sitka, plans by Foss & Malcolm, Juneau, 7 story, rein.-con. apartment. $500,000.

Man., The Pas—HOSPITAL—Bd. St. Anthony's Hospital, The Pas, hospital addn. $250,000.

INDUSTRIAL BUILDINGS

Ala., Anniston—PLANT—Anniston Foundry Co., Anniston, plant addn. $250,000.

Minn., Minneapolis—ROUNDHOUSE—Minneapolis, Northfield & Southern R. R. Co., S. R. Mitchell, ch. engr., 205 Pence Bldg., roundhouse, east of Indiana Ave., and north of 6 Ave. N., Golden Valley, $250,000.

Minn., Minneapolis—WAREHOUSE—National Biscuit Co., 258 - 3 Ave. N., plans by Magney, Tusler & Setter, 202 Foshay Tower, 1 story, part bsmt., 119x272 ft. warehouse, Broadway and Stinson Blvd. Approx. $100,000.

▲ **N. M., Farmington**—REFINERY—Delhi Oil Corp., 1315 Pacific St., gasoline refinery. $1,750,000.

▲ **O., Cleveland**—MOTOR, etc.—Ford Motor Co., 3000 Schaefer St., Dearborn, Mich., plans by Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., motor bldg., foundry, power plant, on 200 acre site adjacent to Cleveland City Airport. $80,000,000. CD 1/13.

Ore., Salem—FACTORY—Norpac, Inc., 4th South and Hinds Sts., Seattle, Wash., aluminum products factory. $250,000.

Tex., Coleman—GAS INJECTION REFINERY—Anzac Oil Corp., Coleman, gas injection refinery unit, 500,000 cu. ft. per day. $750,000.

▲ **Tex., McAllen**—PLANT—Coastal Refineries, Inc., Wilson Bldg., Corpus Christi and Mayfair Minerals, Inc., McAllen, cycling and gasoline plant. $1,750,000.

▲ **Tex., Snyder**—GASOLINE PLANT—Barnsdall Oil Co., N. Esperson Bldg., Houston, 26,000,000 cu. ft. daily capacity gasoline plant. $2,250,000.

Alta., Nobleford — PLANT — Noble Cultivators, Ltd., Nobleford, 1 story, 125x182 ft., frame mfg. plant. Approx. $100,000.

Man., Gretna—PUMPING PLANTS—Interprovincial Pipe Line Co., Ltd., 10152 101 St., Edmonton, Alta., 2 pumping plants, etc. $100,000.

N. B., Newcastle—STATION, etc.—Canadian National Rys., B. Wheelwright, ch. engr., 360 McGill St., Montreal, Que., station, etc. $100,000.

Que., Hull—PLANT—Canada Cement Co., Ltd., 606 Cathcart St., Montreal, plans addn. Approx. $150,000.

Que., Montreal—BREWHOUSE—Canadian Breweries, Ltd., 450 Beaumont St., brewhouse. $150,000.

Que., St. Laurent (Postal Dist., Montreal)—FACTORY—Pollock Brothers & Co., Ltd., 420 Lagauchitiere St., Montreal, factory. Approx. $150,000.

UNCLASSIFIED

Arkansas—RURAL DISTRIBUTION LINES—Arkansas Valley Electric Co-operative Corp., Ozark, 337 mi. rural distr. lines and sys. imprvs., Johnson Co. $980,000.

Conn., West Hartford—RECREATIONAL PROJECT—West Hartford Cornerstone Club, Adult Advisory Com., West Hartford, recreation project, bldg. with swimming pool, 75x100 ft., pool 35x75 ft., showers, lockers, offices, gymnasiums, snack bar, lounge, etc. $325,000.

Florida—RURAL DISTRIBUTION LINES—Choctawhatchee Electric Co-operative, De Funiak Springs, 159 mi. rural distr. lines and sys. imprvs., Walton Co., $220,000.

Georgia—RURAL DISTRIBUTION LINES—Satilla Rural Electric Membership Corp., Alma, 384 mi. rural distr. lines and sys. imprvs., Bacon Co. $900,000. CD 6/10.

Georgia—RURAL DISTRIBUTION LINES—Upson County Electric Membership Corp., Thomaston, 50 mi. rural distr. line and sys. imprvs., Upson Co. $260,000.

Indiana—RURAL DISTRIBUTION LINES—Fayette-Union Co. R.E.N.C., Liberty, 34 mi. rural distr. lines, sys. imprvs., Fayette Co. $105,000

Indiana—RURAL DISTRIBUTION LINES—Warren Co. Rural Electric Membership Corp., Williamsport, 28 mi. rural distr. lines, sys. imprvs., Warren Co. $205,000. CD 2/1.

Iowa—RURAL DISTRIBUTION LINES—Lyon Rural Electric Co-operative, Rock Rapids, rural distr. lines, sys. imprvs., Lyon Co. $155,000. Brown Eng. Co., K. P. Bldgs., Des Moines, consult. engr.

Kansas—RURAL DISTRIBUTION LINES—Butler Rural Electric Co-operative, El Dorado, 187.75 mi. rural distr. lines, and sys. imprvs., Butler, Harvey, Marion and Sedgwick Counties. $358,000, Frank Horton & Co., Lamar, engrs.

Kansas—RURAL DISTR. LINES—P. R. & W. Electric Co-operative, Wamego, rural distr. lines, Geary, Pottawattamie, Riley and Wabaunsee Counties, $345,000, Frank Horton & Co., Lamar, Mo., engrs.

Minn., Minneapolis—DRIVE-IN THEATRE—S. P. Jones, 2116 Pleasant Ave., drive-in theatre, Hys. 7 and 101, in Minnetonka Twp., near here. $200,000.

Miss., Ripley—GAS SYSTEM—City, c/o city clk., bond election Feb. 21, natural gas sys. $545,000. CD 1/6/47.

▲ **Missouri** — RURAL DISTRIBUTION LINES — Howell-Oregon Electric Co-operative, West Plains, 753 mi. rural distr. lines, sys. imprvs., Howell Co. $1,560,000.

Missouri—RURAL DISTRIBUTION LINES—Southwest Electric Co-operative, Bolivar, 219 mi. rural distr. lines, sys. imprvs., Polk Co. $525,000.

Mo., Kansas City—FOUNTAIN—Wm. Volker Memorial Comn., Henry J. Haskell, chn., c/o City Hall, Zone 6, plans by Carl Milles, Swedish Sculptor-Designer, (c/o American Society of Sculptors), Cranbrook, Mich., Wm. Polker Memorial Fountain. Approx. $100,000.

Nebraska — RURAL DISTRIBUTION LINES — Roosevelt Rural Public Power Dist., Mitchell, rural distr. lines, Scottsbluff Co. $120,000. Henningson Eng. Co., Standard Oil Bldg., Omaha, consult. engr.

Okla., Oklahoma City—SWITCHING STATION—City, City Hall, switching station in Nichols Hills. $150,000.

Pennsylvania — RECREATION AREAS — General State Auth., 18 and Herr Sts., Harrisburg, recreation area at Shawnee State Park, Bedford Co., $332,000; recreation area, Raccoon Creek State Park, Beaver Co., $149,000; recreation area, Laurel Hill State Park, Somerset Co., $278,000; recreation area, $99,000; facilities bldgs., $72,000, both at Ricketts Glenn State Park, Luzerne Co. A. F. Jones, c/o owner, ch. engr.

Pennsylvania—RECREATION AREAS, etc.—General State Auth., 18 and Herr Sts., Harrisburg, recreation area, Hickory Run State Park, Carbon Co., $72,000; recreation area, French Creek State Park, $240,000; facility bldgs. at French Creek State Park, Berks Co., $97,200. A. F. Jones, c/o owner, ch. engr.

Pa., Mayview—COAL CONVEYOR, etc.—General State Auth., 18 and Herr Sts., Harrisburg, coal conveyor and bunker at Mayview State Hospital. $150,400. Charles Hoyt, Cheswick, consult. engr. A. F. Jones, c/o owner, ch. engr. CD 7/11.

Pa., Mechanicsburg—LIGHT SIGNALS, etc.—Pennsylvania R. R. Co., J. L. Gressitt, ch. engr., Broad Street Station Bldg., 1617 Pennsylvania Blvd., Phila., 7 flashling light signals and short arm gates to replace manual protection at York, Washington, High, Frederick, Market, Arch and Walnut Street crossings $146,000.

South Dakota—RURAL DISTRIBUTION LINES—Bone Homme-Yankton Electric Assn., Tabor, rural distr. lines, sys. imprv., etc., Bon-Homme and Yankton Counties. $775,000. Buell & Winter, Insurance Exchange Bldg., Sioux City, Ia., consult. engrs.

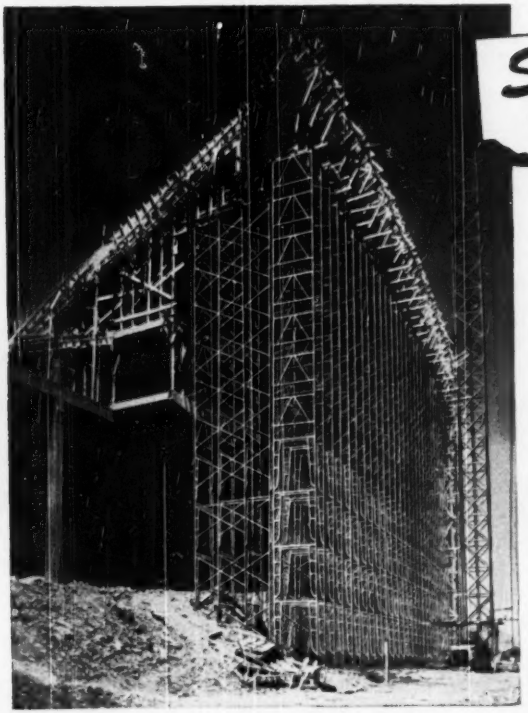
Tenn., Memphis—MOTOR COURT—S. D. O'Dell, c/o Raymond B. Spencer & Assoc., archts., 1st Natl. Bank Bldg., motor court. $250,000.

Tex., Elkhart—ENCAMPMENT and PLAYGROUNDS, etc. —Lakeview Methodist Assembly, Elkhart, encampment and playgrounds, bldgs. $275,000.

Ont., St. Mary's ARENA—Municipality, arena, $150,000.

Que., Montreal—EXHIBITION HALL—J. R. Dansereau, c/o City Clk., Montreal, 1 story, 240x500 ft. exhibition hall at botanical gardens. $250,000.

Que., Montreal—ZOO BLDGS.—Municipality, City Hall, plans by D. Beaupre, city archt., municipal zoo bldgs. $150,000. H. A. Gibeau, city engr.



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Standard SAFWAY Tubular Equipment Permits Better, Faster and Safer Work

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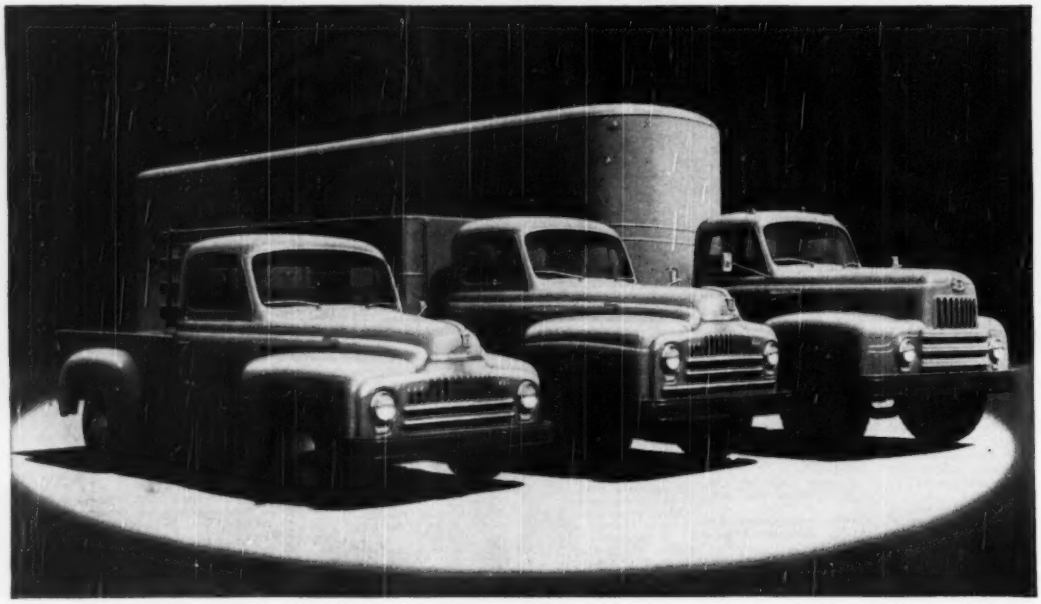

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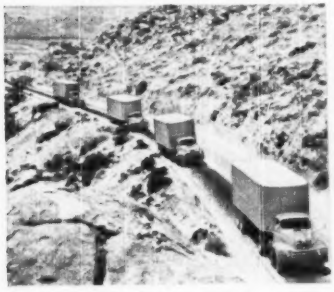
NEW Cradle-Action Springs—Longer springs for greater riding ease . . . stronger springs, sturdier mounting and new spring suspension for longer life.

Plus dozens of new features and refinements throughout every truck!



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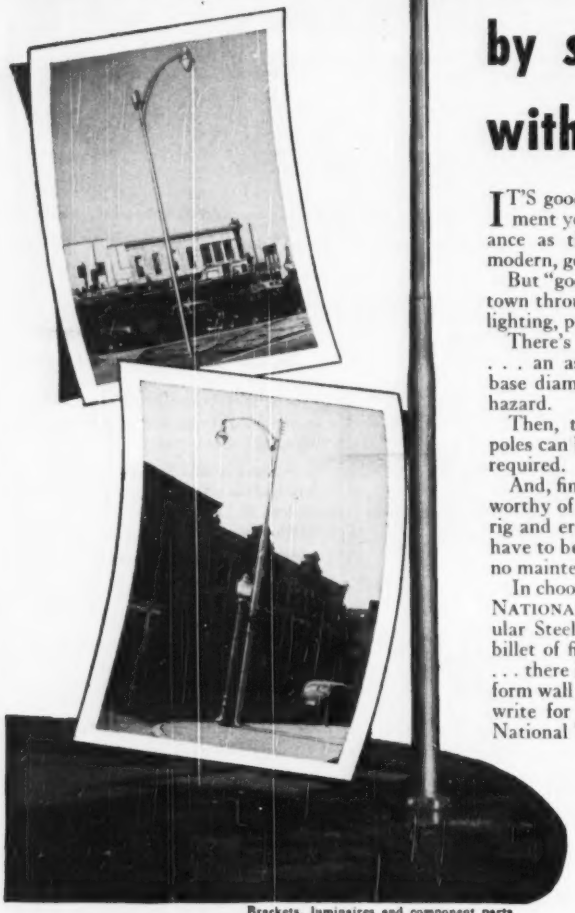

Brackets, luminaires and component parts furnished by Joslyn Mfg. and Supply Co.

IT'S good business to tidy up your town. And no improvement you can make will add so much to its orderly appearance as the replacement of obsolete, irregular poles with modern, good-looking tubular steel standards.

But "good looks" is but one of the advantages you give your town through the adoption of tubular steel poles for all street lighting, power lines, and other commercial purposes.

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And, finally, there are installation and maintenance savings worthy of your consideration. Tubular steel poles are easy to rig and erect with minimum manpower, and they rarely ever have to be replaced, and, other than occasional painting, need no maintenance.

In choosing new poles, you can make no wiser selection than NATIONAL Seamless Tubular Steel Poles. Every U·S·S Tubular Steel Pole is made by the seamless process . . . a solid billet of finest quality steel is pierced to form the basic tube . . . there is no weld, no line of longitudinal weakness . . . uniform wall strength from end to end. For detailed information, write for Bulletin No. 14. Please address your inquiry to National Tube Company, Frick Building, Pittsburgh 19, Pa.

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NATIONAL *Tubular* STEEL POLES

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UNITED STATES STEEL

CONSTRUCTION REPORTS—Second Section

WATER SUPPLY

BIDS ASKED

Mich., Detroit—B.A. 2/28—Dpt. P. Wks., City Hall, Contr. PW 679B, Fairview Pumping Station addns., alterations Parkview Dr. and Dwight St. Plans deposit $50. G. R. Thompson, city engr. CD 8/14/44.

LOW BIDDERS

Md., Hyattsville—Washington Suburban Sanitary Comn., Hamilton St., Feb. 6, Contr. 711-W&S, approx. 3,765 ft. 6- to 10-in. c.i. watermains; 5,670 ft. - to 18-in. plain concrete or vitr. sewers in Lackawanna St., 51 Place, Wichita Ave., along B. & O. R. R., Berwyn, from Intercounty Constr. Co., 4720 Baltimore Ave., $30,754. CD 2/2.

Minn., Holdingford—Village, L. Achman, clk., Jan. 23, WW and sewer extens., from Juhl Constr. Co., Hopkins, $35,855. CD 1/11.

CONTRACTS AWARDED

Man., Winnipeg—Municipality, water mains in various streets, own forces. $45,000. W. D. Hurst, City Hall, city engr. CD 2/11.

Tex., Houston—J. S. Norman Building Co., 4815 Richmond Rd., water lines, own forces. $31,100. CD 1/27.

Tex., San Antonio—Thurman Barrett, 6109 S. Flores St., WW, own forces. Approx. $32,000.

SEWERS, WASTE DISPOSAL

CONTRACTS AWARDED

Tex., Gatesville—City, c/o Dr. K. R. Jones, mayor, Gatesville, sanitary sewer extens., to J. D. George Constr. Co., 807 Amicable Bldg., Waco, $58,921. Est. $84,000. Bids 1/31. CD 1/17.

Tex., Houston—J. S. Norman Building Co., 4815 Richmond Rd., sanitary sewer, own forces. Approx. $50,000.

BRIDGES

STATE HIGHWAY LETTINGS

February 24	March 2
Kentucky	New Jersey
February 28	March 3
Massachusetts	Tennessee

Missouri—State Hy. Comn., Jefferson City, Feb. 2, four 27 ft. and one 67 ft. I-beam spans, over Mingo D.D. 15, Station 40 plus 64 road from Butler Co. east towards Dexter, Rte. 60, Proj. FO178(2), Stoddard Co., from Universal Bridge Co., Inc., Kansas City, Mo., $80,796. CD 1/18.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

February 21	Massachusetts
Maryland	March 1
Massachusetts	California
February 22	March 2
Louisiana	California
February 24	New Jersey
Kentucky	March 3
Pennsylvania	Tennessee
February 28	

LOW BIDDERS

Tex., Dallas—City, City Hall, Main and Harwood Sts., Jan. 31, asph. paving Bengal and Henderson Sts., from City Constr. Co., 2411 Inwood Rd., $62,078. J. T. Conroy, c/o owner, city engr.

CONTRACTS AWARDED

Arizona—State Hy. Dpt., Phoenix imprv. 13¾ mi. Clifton-Safford Hy., Greenlee Co., to W. R. Skousen, Mesa, $192,770. Awarded 1/31.

California—State Div. Hys., Los Angeles, plant mix on cement treated surf., 5.1 mi., constr. two rein.-con. bridges between 0.4 mi. north of Palomas Wash., Los Angeles Co., to Basich Bros. Constr. Co., Basich Bros., W. D. LeFever & D. Gerald Bing, 3850 San Gabriel Blvd., San Gabriel, $793,306. Bids 1/19. CD 1/24, under LB.

Kentucky—State Dpt. Hys., Frankfort, Class F, slag aggregate, bit. surf. Pike Co., and reconstr. and traffic bound surf. 5.707 mi., Talbert-Wolf Coal Rd., Breathitt Co., RS 13-387, to Kentucky Road Oiling Co., Frankfort, $67,654 and $85,596 respectively***traffic bound limestone 0.406 mi. TS 23-281 (a) and RS 23-281 (b), Casey Co., to Wellner Contr. Co., Winchester, $69,825***Class F bit. surf. and rock asph. surf., SP Group 11 (1950), Graves Co., to New York Coal Sales Co., 150 E. Broad St., Columbus 15, O., $96,833*** Class I, bit. surf., SP Group 14A (1950) and SP Group 14B (1950), Boone and Gallatin and Carroll and Trimble Counties, to State Contr. Co., Inc., Hartford, 1-A, Denver Federal Center, Denver, Colo., ch. engr. $188,432***traffic bound river grav., Boone Co., to Fuller-Davies Co., Covington, $50,458. Grand Total $567,797. Bids 1/27. CD 1/11.

Tex., Georgetown—City, double asph. street paving, Purchase and Hire. $69,000. Hoff & Turner, 818 Littlefield Bldg., Austin, engrs.

Tex., Houston—J. S. Norman Building Co., 4815 Richmond Rd., street constr. and paving, own forces. $52,000. CD 1/27.

West Virginia—State Rd. Comn., Charleston, c.conc. 2.019 mi. Twelve Pole Creek Bridge-Cabell Co. line Rd. (U. S. Rte. 60) F. I. 187 (16), Wayne Co., to W. H. Ringwald & Son, Chillicothe, O., $557,296. Bids 12/13, awarded 1/9. CD 12/20, under LB.

EARTHWORK, WATERWAYS

BIDS ASKED

† **Illinois**—B.A. 2/21—U.S. Eng., 520 Merchandise Mart, Chicago, Zone 54, dredging in Chicago Harbor and Chicago River, Inv. CIVENG 11-032-50-26.

N. B., Escuminac—B.A. 2/22—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., breakwater, Approx. $47,500. Plans deposit $25. R. Blais, c/o owner, engr.

† **Illinois and Missouri**—B.A. About 2/23—U.S. Eng., U.S. Courthouse and Custom House, St. Louis 1, Mo., constr. levees Perry County Levee Dists. 1, 2 and 3, Proj. Items III-A, III-B and III-C, Perry Co., Mo. and Randolph Co., Ill.

† **Arkansas**—B.A. On Or About 2/24—U. S. Eng., 300 Broadway, Little Rock, powerhouse and switchyard, Bull Shoals Dam, CIVENG-03-050-50-41. Extended date. CD 1/17.

† **Illinois**—B.A. About 2/24—U. S. Eng., 808 U. S. Courthouse and Customhouse, St. Louis 1, Mo., approx. 1,200 ft. concrete flood wall and 1 railroad closure structure, East Side Levee and Sanitary Dist., Proj. Item I-D(1), vicinity of East St. Louis, St. Clair Co. CD 4/27/44.

† **Michigan**—B.A. 2/24—U. S. Eng., 609 Federal Bldg., Detroit, Zone 31, clearing approx. 142 acres, excav. approx. 1,000,000 cu. yd. flood channel, from point on Red Run approx. ¼ mi. east of Ryan Rd. to its confluence with South Branch of Clinton River near Utica Rd., Macomb Co., CIVENG 20-064-50-71, Tentative date. CD 6/9/44.

† **Michigan**—B.A. 2/24—U. S. Eng., 428 Federal Bldg., Milwaukee 1, Wis., constr. approx. 1,265 lin. ft. steel sheet pile breakwater and dredging mooring basin approx. 600 ft. wide and 1,000 ft. long to project depths of 10 ft. and 14 ft. below water datum, near Traverse City, CIVENG 47-013-50-18. CD 1/11.

† **Mississippi, Louisiana, Arkansas**—B.A. 2/24—U. S. Eng., P. O. Box 60, Vicksburg, Miss., asphalt upper bank paving at several work sites on banks of Mississippi River between Miles 297 and 615 AHP, Serial No. CIVENG 22-052-50-115.

† **Oklahoma**—B.A. 2/24—U. S. Eng., Box 61, Tulsa, clearing Tenkiller Ferry Reservoir, Illinois River, Zones A and B, construct brush rows for fish shleters. $300,000.

† **Michigan**—B.A. 2/27—U. S. Eng., 609 Federal Bldg., Detroit, Zone 31, contr. harbor for light draft vessels, incl. dredging Harbor Basin and erecting 2 cellular steel sheet pile breakwaters located on southwest shore of Lake Huron, about 30 mi. north of Port Huron, opposite center of Port Sanilac, Sanilac Co., CIVENG 20-064-50-72. Tentative date. CD 6/9/44.

† **Florida**—B. A. About 2/28—U. S. Eng., P. O. Box 4970, Jacksonville, Zone 1, dredging in Caloosatchee River, Intracoastal Waterway, Tributary Channel, Okeechobee Waterway, Inv. CIVENG-08-123-50-65. CD 11/24/43.

† **California**—B.A. 2/28—U. S. Eng., 751 S. Figueroa St., Los Angeles, 2,000 ft. rein.-con. Live Oak Wash Channel 20 ft. wide, San Gabriel River, La Verne, CIVENG-04-343-50-28, $200,000-$500,000. CD 1/25/45.

† **Colo., Leadville**—B.A. 2/28—Bureau Mines, Dpt. Interior, Region IV, New Customhouse, Denver, Leadville Drainage Tunnel exten., incl. 3,500 ft. exten. $500,000. CD 12/20.

† **Oregon**—B.A. 2/28—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., material sampling plant for use on railroad relocation work in connection with McNary Dam, at Vellepit, Wash.

† **Oregon**—B.A. 2/28—U. S. Eng., 628 Pittock Block, Portland, Zone 5, construct downstream mooring facilities at Bonneville Dam, Serial No. CIVENG-35-026-50-244.

† **Texas**—B.A. 2/28—U. S. Eng., 606 Santa Fe Bldg., Galveston, dredging Gulf Intracoastal Waterway, tributary channel to Harlingen via Arroyo Colorado from 3 mi. below Rio Hondo to vicinity S.P. Ry. bridge, Cameron Co., Serial No. CIVENG-41-243-50-114. $100,000.

† **Washington**—B.A. 2/28—Bureau Reclamation, Dpt. Interior, Coulee Dam, installing aluminum crest railings with lighting for Grand Coulee Dam, Columbia Basin Proj., Spec. 2902.

† **Wyoming**—B.A. 2/28—Bureau Reclamation, Dpt. Interior, Torrington, constr. work for rehabilitation Fort Laramie Canal Desilting Works near Whalen, approx. 7 mi. northwest of Fort Laramie, Nort Platte Proj., Spec. R7-109 (Region 7). L. N. McClellan, Bldg.

† **Oregon**—B.A. 3/1—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., 27x32 ft. concrete, masonry pump house, McNary.

N. J., Ship Bottom—Bids Asked—Ship Bottom Boro, dredging Little Egg Harbor Bay. Approx. $50,000. Sherman & Sleeper, 501 Cooper St., Camden, engrs.

† **Texas**—Bids Asked—U. S. Eng., 606 Santa Fe. Bldg., Galveston, clearing floodway, excavation of channel (part 1) between Riverside Dr. bridge and Texas & Pacific Ry. bridge, Inv. No. CIVENG-41-243-50-142. $100,000. Plans deposit $10. CD 11/22/43.

LOW BIDDERS

† **California**—U. S. Eng., Wright Bldg., Sacramento, Jan. 31, excavation for abutments Folsom Dam, Proj. 04-167-50-32, Spec. 1427, Folsom, Sacramento Co., from Hawley & Ramlose, 325 N. 5 St., Montebello, 236,044.

† **Illinois**—U. S. Eng., 808 U. S. Court House and Custom House, St. Louis 1, Mo., Jan. 31, highway closure structure Degognia and Fountain Bluff Levee and Drainage Dist., Proj. Item I-D, CIVENG 23-065-50-64, Jackson Co., from E. T. Simonds Constr. Co., Carbendale, $36,279. CD 1/9.

† **Illinois**—U. S. Eng., 826 U. S. Court House and Custom House, 1114 Market St., St. Louis 1, Mo., Jan. 24, constr. 2,000 lin. ft. levees East St. Louis and vicinity (East Side Levee and Sanitary Dist.) Proj. Item I-D(2), St. Clair Co., incl. 30,000 cu. yd. impervious material for levee embankment, core wall, riverside blanket fill, clearing, grubbing, preparing foundation, etc. on east of Mississippi River opposite mile 180.2 to 180.6 above mouth of Ohio River, Inv. CIVENG-23-065-50-62, from Wm. J. Holdoway, 722 Chestnut St., St. Louis 1, Mo., $81,281.

† **Kentucky**—U. S. Eng., P. O. Box 97, Memphis 1, Tenn., Feb. 2, approx. 2,480 lin. ft. imprvs. to floodwall, Item No. L-932, CIVENG 40-041-50-85, from L. A. Tvedt, Porter Bldg., Memphis, Tenn., $292,838. CD 12/21.

† **Louisiana**—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, rejected bids Jan. 5, Item M-97, O-R, Gretna Levee concrete slope paving, located on right descending bank of Mississippi River, in Jefferson Parish, opposite New Orleans, CIVENG 16-047-50-180. CD 12/28.

La., New Orleans—Lone Star Cement Corp., Hibernia Bank Bldg., Jan. 31, 600 ft. rein.-con. sheet pile bulkhead, in front of present wharf on Industrial Canal, concrete and sheet piling, from Kelley-Generes Constr. Co., 134 Carondelee St., $143,488; steel sheet piling, from Byrd & Bruns Bridge Co., 319 Whitney Bldg., $124,700. CD 1/10.

† **Tennessee**—U. S. Eng., P. O. Box 97, Memphis, Zone 1, Jan. 31, preparation slopes and asph. paving Presidents Island, Memphis Harbor (Tennessee Chute) Serial No. CIVENG-40-041-50-88, from Forcum-James Co., Dyersburg, $175,240. CD 1/5.

† **Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, Jan. 30, dredging channel between Galveston and Texas City, Inv. No. CIVENG-41-243-50-152, from Standard Dredging Corp., 80 Broad St., New York, N. Y. $141,379. Est. $150,000.

† **Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, Jan. 30, dredging 1,264,000 cu. yd. Freeport Harbor and Brazosport Turning Basin, Inv. No. CIVENG-41-243-50-155, from Standard Dredging Corp., 80 Broad St., New York, N. Y. $114,248. Est. $100,000.

† **Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, Feb. 1, dredging Cow Bayou channel of Sabine-Neces Waterway, Inv. No. CIVENG-41-243-50-127, from Jahncke Service, Inc., 814 Howard Ave., New Orleans, La., $465,762. CD 1/13.

Tex., Beaumont—City, City Hall, Jan. 31, 16 St. drainage, from Trotti & Thomson, Inc., 2940 Crockett St. $41,076. R. C. Black, city engr. CD 1/18.

Tex., Houston—City, City Hall, 900 Brazos St., Jan. 30, excavating 2,500,000 cu. yd. Greens Bayou, from McGinnis Bros., 5619 Griggs Rd., $403,309. CD 1/24.

▲ **N. B., St. John**—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Feb. 1, dredging Courtenay Bay Channel, from Saint John Dry Dock Co., Ltd., Bayside Dr., St. John. Approx. $1,823,360. CD 1/24.

CONTRACTS AWARDED

Kansas—State Fish & Game Comn., at office Dave Leahy, dir., Pratt, constr. Walnut Creek Diversion Dam Cheyenne Bottoms, Barton Co., near Great Bend, to Western Eng. Co., Harlan, Ia., $180,524. Bids 1/19. CD 1/3.

† **Kansas**—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., 4.1 mi. Levee Unit 500-R, 13 ft. high, located along right bank of Missouri River in Doniphan Co., southeast of White Cloud, CIVENG 23-028-50-77, to Geo. Bennett Constr. Co., 1520 Central St., Kansas City, Kan., $214,533, Est. $279,638. Bids 1/31, awarded 2/2. CD 1/5.

AIRPORTS

BIDS ASKED

† **Calif., McClellan Field**—SPRINKLER SYSTEMS, etc.—B.A. 2/28—U. S. Eng., 180 New Montgomery St., San Francisco, water supply for sprinkler system, McClellan Air Force Base, Spec. 04-203-50-105. Extended date.

Ill., Chicago—TERMINAL—B.A. 2/28—City Dpt. P. Wks., City Hall, Zone 2, Div. A, general contract/ Div B, architectural; Div. C, electrical work, Div. D, mechanical; Div. E, elevators, 2 story 185x350 ft., steel, brick, limestone terminal bldg. Finger B Bldg., for O'Hare Field, Chicago International Airport. Extended date. Skidmore, Owings & Merrill, 100 W. Monroe St., archts. CD 1/17.

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Calif., Rohnerville—AIRPORT LIGHTING—B.A. 3/1—Humboldt Co., Courthouse, Eureka, Rohnerville Airport lighting. Approx. $50,000. Plans deposit $5.

† **Alaska, Anchorage**—HANGAR, etc.—B.A. 3/1—Fish and Wildlife Service, Dpt. Interior, 3247 Interior Bldg., Wash. 25, D. C., airplane hangar and seaplane landing ramp, Inv. No. FW6-484. Extended date. CD 1/17.

† **Mich., Selfridge Airforce Base**—BARRACKS, etc.—Bids Asked—U. S. Eng., 520 Merchandise Mart, Chicago, Ill., masonry, concrete, barracks, roads, utilities, etc. $750,000. Plans deposit $100.

LOW BIDDERS

† **Fla., Jacksonville**—DISTRIBUTION SYSTEM—Yards & Docks Annex, Navy Dpt., Arlington, Va., Jan. 31, steam distr. sys. overhead and concrete trench steam lines, pump houses, heater room ventilating sys., mechanical equip. and condensate pumps, Spec. 23173, from The Kimball Co., Jacksonville, $66,225. CD 12/30.

CONTRACTS AWARDED

N. B., St. John—RUNWAY—Government of Canada, Ottawa, Ont., clearing, grubbing, stumping of area on which runway is to be built, constr. runway at St. John Airport, to Municipal Spraying & Contg. Co., Ltd., 1350 Barrington St., Halifax, N. S., $150,000. CD 3/28/45.

PUBLIC BUILDINGS

BIDS ASKED

N. Y., Shelter Island—SCHOOLS—B.A. 2/20—Bd. Educ., Union Free School Dist. 2, Shelter Island, grade and high school addn. $250,000. F. P. Wiedersum, 240 Rockaway Ave., Valley Stream, archt. CD 1/9.

Colo., Ft. Collins—STUDENT UNION—B.A. 2/21—Colorado A & M College, Ft. Collins, 3 story, 105x130 ft., brick student union bldg. addn. Approx. $250,000. Eugene G. Groves, 405 California Bldg., Denver, archt. and engr.

Mass., Wakefield—PLANT—B.A. 2/21—Town, Municipal Electric Dpt., Town Hall, brick, steel, concrete electric power plant, North Ave. $250,000. Edw. M. Bridge, 131 State St., Boston, archt. CD 8/17.

▲ **Mass., Weymouth**—B.A. 2/21—Town, E. S. Mapes, supt. Schools, 89 Middle St., 2 story, bsmnt., brick, steel, concrete Junior High School. $1,500,000. Plans deposit $50. Colletti Bros., 687 Boylston St., Boston, archts. CD 10/21/48.

N. Y., New York—HOUSING STREET and YARD IMPRVS.—B.A. 2/21—New York City Housing Auth., 63 Park Row, Zone 7, construct street, yard imprvs. for Gun Hill Houses (Proj. No. NYC-9) in area bounded by Holland Ave., Gun Hill Rd., White Plains Rd., Magenta St., Cruger Ave. and a line south of and parallel with Magenta St., Bronx Boro. Plans deposit $25.

O., Parma—SCHOOL—B.A. 2/21—Bd. Educ., 5401 W. 54 St., Cleveland, brick, stone school, Blossom Ave. near Pearl Rd. $450,000. Plans deposit $20. Fulton, Krinsky & Delamotte, 6014 Euclid Ave., Cleveland, archts. CD 11/21.

† **Pa., Coatesville**—HOSPITAL—B.A. 2/21—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., Hospital Bldg. 4 alterations. Spec. 5004. $50,000.

† **Vermont and Massachusetts**—UTILITY—B.A. 2/21—U. S. Eng., Bldg. 21, Boston Naval Shipyard, South Boston Annex, South Boston, Mass., utility bldg. at Union Village Dam, Ompompanoosuc River, Vt., and Birch Hill Dam, Millers River, Mass., Serial No. CIVENG-19-016-50-33. CD 1/12.

Va., Radford—TRAINING SCHOOL—B.A. 2/21 — At office Dr. David W. Peters, college pres., Radford, training school at Radford College, Woman's Div. of Virginia Polytechnic Institute, for State of Virginia, Richmond. $250,000. Plans deposit $25. Stone & Thompson, 609 S. Jefferson St., Roanoke, archts. CD 5/24/45.

Md., Cumberland—HOSPITAL—B.A. 2/23—Memorial Hospital, Cumberland, 2 story, bsmnt., 40x64 ft., rein.-con. brick, cinder block, contagious diseases hospital wing addn. $250,000. Plans deposit $30. Palmer, Fisher, Williams & Nes, 1020 St. Paul St., Baltimore, archts.

Minn., Shakopee—SCHOOL—B.A. 2/23—Bd. Educ., Mrs. M. L. Regan, clk., 3 story, L-shaped, one section 63x190 ft., 2nd section 100x195 ft., school addn. Approx. $400,000. Plans deposit $20. Long & Thorshov, 400 Metropolitan Life Bldg., Minneapolis, archts. CD 8/10.

O., Canton—SCHOOL—B.A. 2/23—Canton Bd. Educ., Canton, 1 story, part bsmnt, brick, block Jesse Mason School, 30 St. N. W. $392,000. Outcalt, Guenther & Assoc., 13124 Shaker Square, Shaker Heights, archts. CD 1/23.

Tex., Lubbock—LIGHT and POWER PLANT—B.A. 2/23—City, electric light and power plant expans. $275,000. G. K. Harris, city engr. CD 12/15/47.

Wash., Seattle—POWERHOUSE—B.A. 2/23—City, County-City Bldg., Zone 4, 190,000 cu. yd. excav., mostly rock, for Ross Dam Powerhouse and tunnel boring, Newhalem. Approx. $75,000. Plans deposit $10. E. R. Hoffman, city light supt.

▲ **Que., Montreal North**—HOUSING—B.A. 2/23—D. Hadekel, engr., c/o Central Mortgage & Housing Corp., 1253 McGill College Ave., Montreal, 216 dwellings units, Montreal North Proj. 1-49-8. Approx. $1,400,000. Plans deposit $10.

▲ **Mass., Gardner**—HOSPITAL—B.A. About 2/24—Commonwealth of Mass., Dpt. Mental Health, 100 Nashua St., Boston, brick, steel, concrete receiving bldg., Gardner State Hospital, PM-20, $1,200,000. James A. Britton, 20 Federal St., Greenfield, archt. CD 3/2/45.

▲ **Calif., Los Angeles**—GARAGE, etc.—B.A. 2/24—City Bd. Educ., 1425 S. San Pedro St., 2 story underground garage and 3 story office, $1,448,000. A. C. Zimmerman, 2439 Hyperion Ave., archt.

Del., Lewes—GYMNASIUM, etc.—B.A. 2/24—Lewes Special School Dist., Lewes, gymnasium, cafeteria, classrooms, $550,000. Plans deposit $25. Stanhope & Manning, 808 Equitable Bldg., Wilmington, archts. CD 8/25.

Fla., Lantana—NURSES HOME, etc.—B.A. 2/24—Florida State Tuberculosis Bd., No. 4 Seabreeze Ave., Delray Beach, nurses homes, help's quarters and garages, Proj. 16. Plans deposit $30; laundry plant, bldg. and equip. Proj. 15. Plans deposit $5, both for Florida State Tuberculosis Sanitorium. Reynolds, Smith & Hills, 227 Park St., Jacksonville, Zone 1, archts. and engrs.

▲ **Mass., New Bedford**—HOUSING—B.A. 2/24—City of New Bedford Housing Auth., Presidential Heights, New Bedford, 234 unit 2 story, Housing Proj. 200-2, Dartmouth St., Rockdale. $1,730,000. Tallman-LaBrode-Rounseville, 222 Union St., New Bedford, archts. CD 7/26/48.

Tex., Irving—SCHOOLS—B.A. 2/24—Irving Independent School Dist., Irving, 2 stucco, brick schools, concrete slab fdns. $425,000. Thomas, Jamieson & Merrill, 820 N. Harwood St., Dallas, archts. CD 11/15.

▲ **Tex., Lubbock**—SCIENCE, etc.—B.A. 2/24—Texas Technological College, Lubbock, science, $700,000; administration bldg. wings, $300,000, Wyatt C. Hedrick, 1st. Natl. Bank Bldg., Fort Worth, engrs. and archts.; engineering wings, $800,000, Atkinson & Atkinson, Lubbock, and Foster & Davis, El Paso, engrs.; music hall, $475,000, Walsh & Hazelwood, Amarillo, archts.; home economics, $625,000, Haynes & Kirby, Lubbock, archts. Bid date changed. CD 12/20.

† **Washington**—HOUSING—B.A. 2/24—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, housing, administration and maintenance facilities for Chief Joseph Dam, incl. 40 frame houses, admin. bldg., vehicle maintenance shop, streets, sidewalks, water distr. lines, sewers, etc., Bridgeport, CIVENG-45-108-50-47, Extedned date. CD 12/28.

Wash., South Bend—SCHOOL—B.A. 2/24—School Dist. 118, South Bend, school. $250,000. Plans deposit $25. Charles & Clarence Rueger, Puget Sound Bank Bldg., Tacoma, archts. CD 8/17.

Ont., Toronto—HOUSING—B.A. 2/24—H. E. McCallum, mayor, c/o The Housing Authority of Toronto, 465 Bay St., one 48 family apartment and two 8 family group houses, Regent Park Housing (North) Bldgs 8, 9 and 10 Dundas St. Approx. $525,000. Plans deposit $50. J. E. Hoare Jr. 481 Eglington Ave., W., archt.

† **Vt., St. Albans**—BUILDINGS, etc.—B.A. After 2/24—U. S. Eng., Army Base, Boston, 10, Mass., buildings, utilities, on Bellevue Hill, Bid No. ENG-19-016-50-23.

▲ **Tex., Lubbock** — BUILDINGS — B.A. 2/25 — Texas Technological College, Lubbock, engineering wings, $800,000, Atkinson & Atkinson, Lubbock, and Foster & Davis, El Paso, engrs., music hall, $475,000, Walsh & Hazelwood, 226 Paramount Bldg., Amarillo, archts., home economics, $625,000, Haynes & Kirby, 19 and Dixie Dr., archts.; administration bldgs, wings $300,-000, science bldg. $700,000, Wyatt C. Hedrick, First Natl. Bank Bldg., Fort Worth, engr. and archt. CD 11/1.

S. C., Spartanburg—AUDITORIUM—B.A. 2/27—Spartanburg Auditorium Comn., Spartanburg, Mememorial Auditorium, Lockwood-Greene Engineers, Spartanburg, archts. CD 11/29/48, under I.B.

▲ **Ont., Sudbury**—CIVIC CENTER—B.A. 2/27—J. B. Sutton, archt., 81 Lorne St., 4,200 seating capacity civic center on site of Central School property, for Municipality. $1,200,000. CD 12/15.

† **Conn., Naugatuck**—MOTOR VEHICLE STORAGE—B.A. About 2/28—U. S. Eng., Army Base, Boston, 10, Mass., motor vehicle storage bldg., off Rubber Ave. near Woodcuff Ave. Bid No. NG-06-020-50-3.

† **Conn., Southington**—MOTOR VEHICLE STORAGE—B.A. About 2/28—U. S. Eng., Armory Base, Boston, 10, Mass., motor vehicle storage bldg., off Main St. near Chestnut St. Bids No. NG-06-020-50-3.

Calif., Alameda—SCHOOL—B.A. 2/28—Bd. Educ., Oak St. and Alameda Ave., 20 classroom wood, stucco, Woodstock School, $400,000. Plans deposit $25. Kent & Hass, 525 Market st., San Francisco, archts. CD 6/10/48.

Wash., Auburn—HIGH SCHOOL—B.A. 2/29—School Dist. 408, 9420 S. 240 Place, 2 story, 259x445 ft., monolithic concrete Senior High School with 1 story steam heating plant. $800,000. Extended date. Mallis, DeHart & Hopkins, Lyon Bldg., Seattle, Zone 4, archts. CD 1/18.

LOW BIDDERS

Calif., Berkeley—SCHOOL—Bd. Educ., 1414 Walnut St., Jan. 31, 15 classroom concrete Le Conte School, from Frank A. Payne & Son, 8 Overhill Rd., Orinda, $567,000. CD 12/30.

Calif., San Francisco—SCIENCE—Etate Div. Architecture, P. Wks. Bldg., Sacramento, Jan. 31, general contract 2 story, 51,000 sq. ft. rein.-con. science

(Continued on page 104)

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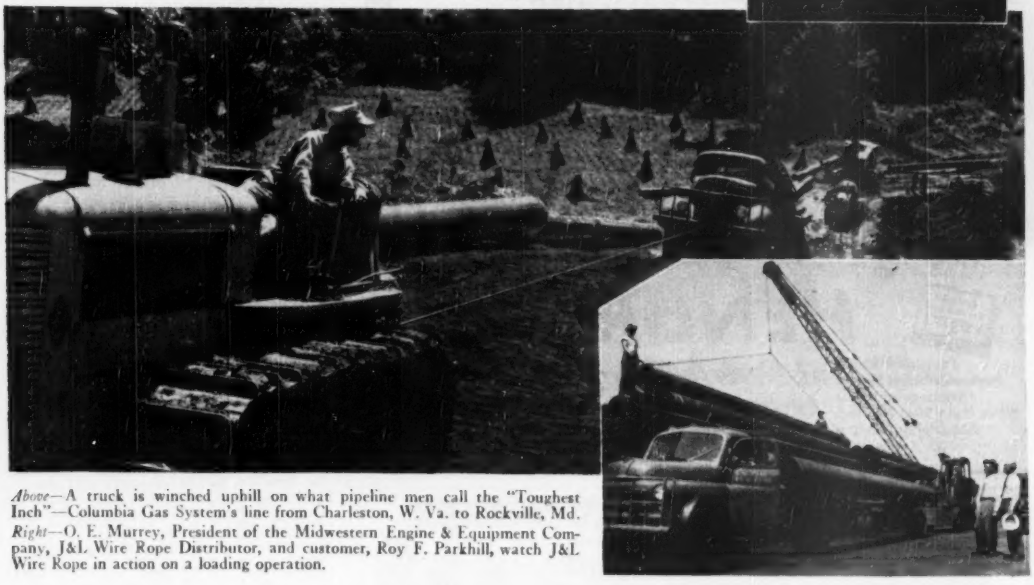

Above—A truck is winched uphill on what pipeline men call the "Toughest Inch"—Columbia Gas System's line from Charleston, W. Va. to Rockville, Md. *Right*—O. E. Murrey, President of the Midwestern Engine & Equipment Company, J&L Wire Rope Distributor, and customer, Roy F. Parkhill, watch J&L Wire Rope in action on a loading operation.

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(Continued from page 102)

bldg. at San Francisco State College, from Moore & Roberts, 693 Mission St., $482,191. CD 1/3.

Calif., Santa Rosa—MEMORIAL—Sonoma Co., Courthouse, rejected bids Jan. 20, 1 story, steel, rein.-con. memorial bldg. L. B. Alternate 1, $630,000; Alternate 2, L. B. $568,900. CD 1/27, under LB.

Fla., Fernandina—SCHOOL—Bd. Public Instruction, Fernandina, 8 public school bldgs., in Fernandina and Nassau Co., from Dennison Constr. Co., Gainesville, $648,887. CD 10/18.

Kan., Lawrence—CITY—City, City Hall, Jan. 23, general contract city bldg. for Fire and Police Dpt., from Constant Constr. Co., Lawrence, $269,900. CD 1/25.

Tex., Bryan—POWER HOUSE—City, Jan. 16, 2nd unit electric power house, 5,000 kw. steam turbine type from Condenser Service Co., Natl. Standard Bldg., Houston, Unit 1, $148,517. CD 11/29.

Tex., Canyon — PHYSICAL EDUCATION — West Texas State Teachers College, Canyon, Jan. 26, physical education, from Neill Singleton, 416 Oliver-Eakle Bldg., Amarillo, $376,846. CD 1/11.

Tex., El Paso—SCHOOL—El Paso Independent School Dist., El Paso, Jan. 31, brick, concrete hollow tile Hillside School, slab fdn., from C. H. Leavell & Co., 1900 Wyoming St., $331,306. CD 1/24.

▲ Va., Staunton—RECEPTION, etc.—State Hospital Bd., Dr. Joseph E. Barrett, comr., 9 N. 12 St., Richmond, Feb. 2, reception bldg., male and female recovery bldgs. at Western State Hospital, from Virginia Eng. Co., Inc., P. O. Boxx 971, Newport News, $1,770,000. CD 12/28.

Wis., Lake—GARAGE—Town, 4001 S. 6 St., Milwaukee, Zone 7, cancelled bids to have been opened Jan. 30, 1 story, 100x122 ft. garage. CD 1/18.

CONTRACTS AWARDED

▲ Calif., Los Angeles—CHEMISTRY-GEOLOGY—Bd. Regents University of California, 405 S. Hilgard Ave., 3 story, 150,000 sq. ft. rein.-con., brick chemistry-geology bldg., to Haddock Engineers Ltd., 1616 Greenwood St., Montebello. $2,525,000. Bids 1/4, awarded 1/13. CD 1/12, under LB.

Calif., Redding—HIGH SCHOOL, etc.—Shasta Union High School & Junior College Dist., Redding, main Shasta Union High School and Junior College bldg., to B & R Constr. Co., 110 Market St., San Francisco, $636,967. Bids 1/31. CD 1/12.

Calif., San Francisco—SCHOOL—Dpt. P. Wks., City Hall, general contract Hillcrest School, Unit 1, to Robert McCarthy Co., 1050 Kirkham St., $527,985. Bids 1/18. CD 1/25, under LB.

Conn., Winchester—SCHOOL—Bd. Educ., Town Hall, school addn., to Lewis Constr. Co., 189 Silas Deane Hy., Rocky Hill. $320,000. Bids 12/6. CD 11/30.

Ill., Urbana—VETERINARY MEDICINE—University of Illinois, Urbana, 4 story, brick, rein.-con., stone veterinary medicine bldg., to John Felmley Co., Bloomington $697,600. Bids 1/30. CD 1/19.

Kan., Pittsburg—SCHOOL—State Bd. Educ., Topeka, general contract secondary school at Kansas State Teachers College, to Huff Constr. Co., 824 S. Crawford St., Ft. Scott. $354,875. Bids 1/24, CD 1/11.

▲ Mich., Detroit—HOSPITAL—City, Dpt. P. Wks., 104 City Hall, 5 story, 52x90 ft. and 52x217 ft., T-shaped, rein.-con., masonry, receiving hospital, to Kriegoff Co., 6661 French Rd., Detroit. $1,219,521. Bids 1/24, awarded 1/28. CD 1/31, under LB.

▲ O., Warrensville—HOSPITAL—Comrs., Cuyahoga Co. Courthouse, 4 story, bsmnt, brick, steel tuberculosis hospital, to Sam W. Emerson Co., 1836 Euclid Ave., Cleveland. $1,745,000. Bids 1/24, awarded 2/2. CD 2/2, under LB.

Ore., Toledo — SCHOOLS — Lincoln Co., School Dist., Toledo, 9 room rein.-con. school at Siletz, and 12-room rein.-con. Stanton Grade School at Toledo, to Johnson-Sterner Corp., 3536 S. E. 76 St., Portland, $272,200. Bids 1/27. CD 1/9.

Alta., Suffield—SHOPPING, etc.—Canadian Commercial Corp., 70 Lyon St., Ottawa, Ont., shopping, recreation center and garages, to Bird Constr. Co., Ltd., 3 Ave. and 14 St. S., Lethbridge. Approx. $261,320.

Ont., Sioux Lookout—HOSPITAL—Town, A. Wren, clk., 40 bed concrete, brick general hospital, concrete floor slab on steel joists, to Barnett-McQueen Co., Ltd., 460 Christina St., Ft. Williams. Approx. $500,000. Bids 1/16. CD 12/28.

COMMERCIAL BUILDINGS

BIDS ASKED

Mich., Pontiac—CHURCH—B.A. 2/21—First Baptist Church, c/o Wm. C. Zimmerman, archt., 831 W. Huron St., 1 story, bsmnt., 66x120 ft., masonry, concrete, millwork, structural steel church. $300,000.

S. C., Columbia—CHURCH—B.A. 2/23—Park Street Baptist Church, Capitol Life Insurance Bldg., church. Plans deposit $50. Lafaye, Lafaye & Fair and Walter F. Petty, Assoc., 1226 Sumter St., archts. CD 11/11.

Wis., Milwaukee—HIGH SCHOOL, etc.—B.A. 2/24—Sisters of the Divine Savior, 3516 W. Center St., 4 story, 65x240 ft. high school, 145x148 ft. auditorium-gymnasium 36x115 ft. chapel, steel, brick, blocks, stone, concrete fdns. and floors E. Brielmaier & Sons, 735 N. Water St. Zone 2, archts.

Ill., Chicago—HOSPITAL—B.A. 3/1—Illinois Masonic Hospital, 834 W. Wellington St., Zone 14, 7 story, 65,000 sq. ft., steel, concrete, brick hospital addn., $600,000. Extended date. Schmidt, Garden & Erickson, 104 S. Michigan St., Zone 3, archts. CD 11/16.

Que., Hull — CHURCH — B.A. 3/1 — L. Sarra-Bournst, archt., 189 Prinicipale St., 70x120 ft., rein.-con., steel, stone, brick and block church and prebytery, Boulevard St. Joseph, for Parish of St. Joseph, Rev. R. Glaude, cure, Approx. $500,000. CD 10/15/47.

N. C., Winston-Salem—OFFICE—B.A. 3/7—Security Life & Trust Co., 1281 W. 4 St., 4 story, bsmnt., brick, steel office. Plans deposit $50 general, $25 mechanical. Macklin & Stinson, Wachovia Bldg., archts. CD 12/15.

▲ **D. C., Wash.**—HOSPITAL—B.A. 3/14—Children's Hospital, 13 and V Sts N. W., 5 story, rein.-con. hospital behind old structure and remodeling present bldg., W St. at 13 St. N. W. $2,000,000. York & Sawyer, 1308 18 St. N. W., archts. Extended date. CD 12/16.

▲ **Que., Montreal**—Y. W. C. A. BLDG.—Bids Asked—A. L. Perry, archt. 1502 St. Catherine W., 7 story, bsmnt., 120x185 ft. rein.-con., structural steel frame, brick, stone Y. W. C. A. bldg., for Y. W. C. A., 1124 Dorchester St. Approx. $1,300,000. CD 1/22/48.

SOON LETS CONTRACT

Ark., Little Rock—EDUCATIONAL—First Methodist Church, 8 and Center Sts., soon lets contract 3 story educational bldg. Bruce R. Anderson, Wallace Bldg., archt.

Mich., Highland Park — EDUCATION, etc. — Highland Park Baptist Church, soon lets contract 4 story, bsmnt., 97x112 ft., masonry, concrete educational bldg. and auditorium. $400,000. CD 1/23.

LOW BIDDERS

Calif., San Mateo—APARTMENT—De Sabla Apartment Corp., c/o Angus McSweeney, archt., 514 Mission St., San Francisco, Jan. 30, 11 story, rein.-con. 140 unit apartment with bsmnt. garage, from Barrett & Hilp, 918 Harrison St., San Francisco. Approx. $250,000. CD 1/24.

Colo., Denver—DEPARTMENT STORE—Louis W. Mack, Mack Bldg., Denver, Feb. 1, 6 story, 132,000 sq. ft., 100x125 ft. structural steel department store, from A. A. and E. B. Jones, 682 Wyandot, Denver, $937,986. CD 1/10.

Ore., Roseburg—HOSPITAL—Mercy Hospital, Roseburg, Jan. 18, 3 story, 40x80 ft., rein.-con. 45 bed hospital addn., from Donald M. Drake Co., Lewis Bldg., Portland, $395,750. Est. $300,000. CD 1/10.

Tex., Brownsville—HOSPITAL—Mercy Hospital, Brownsville, Jan. 31, general contract 42 bed hospital unit, from Commercial Constr. Co., 341 N. Comal St., San Antonio, $410,786. Est. $603,000. CD 12/14.

Tex., San Antonio—GYMNASIUM—San Fernando Parish, 115 Military Plaza, Jan. 24, gymnasium from Victor Prassel Constr. Co., Inc., Box 536, $253,000. Est. $250,000. CD 12/20.

CONTRACTS AWARDED

Calif., Pico—DWELLINGS—Halper Constr. Co., 739 N. Highland Ave., Los Angeles, 138 frame, stucco dwellings in Tract 14330. Owner builds. $900,000. Southwest Drafting Service, 2724 W. Florence Ave., Los Angeles, archts.

Conn., East Hartford—HOUSING—Standard Home Builders, Inc., J. F. Faticaco, pres., Ridgewood Rd., 25 ranchtype houses, Ridgewood Road Section. Owner builds. $400,000.

Del., Seaford—RESIDENCES—Ralph S. & Francis H. Bennett, c/o Seaford Lumber Co., Route U. S. 13, sixty 1½ story, no bsmnt. residences, separate contracts. $480,000.

Ill., Berwyn—NURSES HOME—MacNeal Memorial Hospital, 3249 S. Oak Park Ave., 5 story, concrete, brick nurses home, to Kaiser Ducett Co., 80 E. Jackson St., Chicago, Zone 4, $330,000. Awarded 1/25. CD 1/19.

Ill., Chicago—APARTMENT—3075 Cheltenham Corp., 39 S. LaSalle St., Zone 3, 5 story, 76x139 ft., 60 unit apartment, 3075 Cheltenham Pl., to Henning E. Johnson & Son, 7649 S. State St., Zone 37, $400,000. Awarded 1/23. Loewenberg & Loewenberg, 111 W. Monroe St., Zone 3, archts.

Ia., Iowa City—APARTMENTS—Dr. Henry J. Hamilton, Paramount Bldg., Cedar Rapids, apartment, to Skogman Constr. Co., Prairie Dr. and G Ave. N. E., Cedar Rapids. $400,000.

Ky., Louisville—RESIDENCES—C. Robert Peter Co., 316 S. 5 St., Zone 2, 40 unit frame residences, to Style Constr. Co., 316 S. 5 St., Zone 2, $360,000. Awarded 1/3.

▲ **Ky., Louisville**—HOUSING—H. G. Whittenberg, 2214 S. Floyd St., 440 unit 2 and 3 story, brick veneer apartments, to H. G. Whittenberg Constr. Co., 2214 S. Floyd St., Zone 5, $2,860,000. Awarded 1/2, Peyton M. Davis, 401 Realty Bldg., Zone 2, archt.

Mich., Pontiac—OFFICE—R. C. Mahon Co., 8650 Mt. Elliott St., Detroit, 3 story, 100x262 ft. irregular shaped structural steel, masonry office, Warren Twp., to O. W. Burke Co., 1032 Fisher Bldg., Detroit. Est. $400,000.

Mo., Clayton (St. Louis 5 P. O.)—APARTMENT—Van Kost Realty Co., 732 S. Hanley Rd., Clayton, 3 story, 60x172 ft., brick, apartment, 732-738 South Hanley Rd., to A. H. Stiel, 813 Chestnut St., St. Louis, Zone 1. Approx. $250,000. Gay Weinel, 3863 W. Pine St., St. Louis, Zone 8, archt.

▲ **Mo., Kansas City**—STORES—S. S. Kresge Co., T. B. Murphey, mgr., Constr. Dpt., 2727 Second Ave., Detroit 32, Mich., 2 stores addn. and modernization incl. 2 story, uniform facade with permanent canopies over sidewalks on both streets, to Winn-Senter Constr. Co., 403 Railway Exchange Bldg., Kansas City 6, Mo. Approx. $2,000,000. CD 10/10.

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CLECO DIVISION
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Mo., St. Louis—HOSPITAL—Faith Hospital Assoc., Dr. A. J. Signorelli, dir., 2800 N. Taylor Ave., Zone 15, general contract 3 story, modernistic, solar-type constr. hospital and boiler house, fronting 165x543 ft., in 3000 block of North Kingshighway Blvd., to Charles Christina, 5425 Columbia Ave., Zone 9, $319,000. Bids 1/9. CD 12/9.

Mo., St. Louis—APARTMENTS—Sunshine Terrace No. 1, Inc., Robert Terrace No. 1, Inc., Sunshine Apartments, Inc., and Sunshine Dr., Inc., 6053 Childress Ave., Zone 9, four 2 story, bsmnt., 32x57 ft. and 32x57 ft., irregular shaped, brick, concrete apartments, 6214-18-21-25-26-28, Sunshine Dr. and 6211-15 Robert Ave., Zone 9, to Higginbotham Bros., Inc., 6053 Childress Ave., Zone 9, $250,000. W. H. Mills & Son, 8032 Forsyth Blvd., Clayton, St. Louis, Zone 25, archts.

▲ N. Y., Hicksville — HOUSES — Levitt & Sons, 3230 Northern Blvd., Manhasset, 9,000 one family houses on 1,200 acre site between Old Country Rd., Jerusalem Ave., Old Long Island Motor Parkway and Carman Ave., Oyster Bay Twp. Owner builds. $9,000,000.

▲ N. Y., Mt. Vernon—SHOPPING CENTER—Syndicate, S. Solon Cohen, pres., c/o contractors, railroad shopping center, to include N. Y., N. H. & H. R. R. Station, 35 stores, 600 seat theater and department store, to Stein-Cohen Constr. Corp., 175 Main St., White Plains, $1,000,000. Beak & Raad, 175 Fifth Ave., New York, Zone 19, archts.

▲ N. C., Charlotte—HOUSING—Younts Realty Co., Paul R. Younts, pres., 122 Brevard Ct., housing along Sunset Dr., Cambridge, Guilford and Meadow Rds., to Whitton Bros., 301 W. 2 St. $2,000,000.

N. Y., Bellaire—CHURCH—Herbert Matz, archt., 21 E. 38 St., New York, church for Lutheran Church of Good Shepherd, at Francis Lewis Blvd. and 100 Ave., to Charles R. Krieg, Inc., 274 Madison Ave., New York, Zone 16. Approx. $250,000. CD 12/7.

Tex., Beaumont — APARTMENT — Gaylynn Apartment Corp. c/o D. Hannah & J. Cassidy, 800 Main St., Houston, 12 apartments, adjacent Northway Arms Apartment, Purchase and Hire. Approx. $775,000. CD 1/11.

Tex., Bellaire—DWELLINGS—L. W. Prokop, 3711 Glenhaven St., Houston, 40 dwellings, off Silber Rd. to Prokop Constr. Co., 5727 Kirby Dr., Houston. Approx. $250,000. CD 1/23.

Tex., Corpus Christi—DWELLINGS—Thomas Constr. Co., Hy. 9, 45 dwellings, own forces. $250,000. CD 1/30.

Tex., Corpus Christi—DWELLINGS—J. & J. Constr. Co., McBride Lane, 54 dwellings. Owner builds. Approx. $375,000. CD 1/30.

Tex., Dallas—DWELLINGS—Moody & Tips, 701 Forest Ave., 75 dwellings, 400 acre site. Owner builds. Approx. $450,000. CD 3/3/49.

Tex., Dallas—DWELLINGS—C. C. Laenburger, c/o Prestonville Apartments, Dallas, 18 dwellings. Owner builds. Approx. $250,000. CD 1/31.

▲ Tex., Dallas—APARTMENTS—Joe J. Danna and B. A. & Hayden Ellis, 4619 Verdun St., 25 Negro apartments. Owner builds. Approx. $1,000,000. CD 1/27.

Tex., Fort Worth—DWELLINGS—Frank C. Bliss, 407 W. 7 St., 75 one story frame, dwellings, concrete fdn., etc., Wesleyan Hills Addn. Owner builds. $375,000.

Tex., Harlingen—DWELLINGS—Smith & Smith, Harlingen, 28 ranch-type dwellings. Owner builds. $260,000. CD 1/19.

▲ Tex., Houston—DWELLINGS—S. N. Aams, 3713 Inwood St., 100 dwellings, off Westheimer Rd. Owner builds. Approx. $1,000,000. CD 1/12.

Tex., Houston—DWELLINGS—H. H. Clark & Son, 1601 W. 14 St., 50 dwellings, between 27 and 28 Sts. Owner builds. Approx. $300,000. CD 1/27.

Tex., Houston—DWELLINGS—Modell & Co., 2111 Westheimer Rd., 250 Negro dwellings. Owner builds. Approx. $800,000. CD 1/27.

Tex., Houston—DWELLINGS—W. E. Krumnow, 6610 Stearns St., 30 dwellings, day labor. Approx. $250,000. CD 1/30.

▲ Tex., Houston—APARTMENT—H. R. LeMay, 5156 W. Alabama St., 268 apartment units, own forces. Approx. $1,750,000. CD 1/27.

Tex., Houston — DWELLINGS — J. S. Norman Building Co., 4815 Richmond Rd., 50 addnl. dwellings, in Ridgecrest Addn. Owner builds. Approx. $400,000.

▲ Tex., Houston — DWELLINGS — Lawrence O'Donnell, 9102 Humble Rd., 250 dwellings, own forces. $1,250,000. CD 1/27.

Tex., LaPorte—DUPLEXES—The Bee Corp., 1364 Wakefield Dr., Houston, 15 duplexes in Old Township area. Owner builds. Approx. $250,000. CD 1/6.

Tex., LaPorte—DWELLINGS—Bee Corp., c/o Byron Moore, LaPorte, 61 dwellings. Owner builds. Approx. $425,000. CD 1/23.

Tex., LaPorte—DWELLINGS—Moore & Moore, LaPorte, 30 dwellings. Owner builds. $250,000. CD 1/27.

Tex., Mission—DWELLINGS—D. L. Rankin, Mission, 40 dwellings, day labor. Approx. $260,000. CD 1/27.

Tex., San Antonio—DWELLINGS—Thurman Barrett, 6109 S. Flores St., 30 dwellings, to Barrett-Lively Constr. Co., 6109 S. Flores St. Approx. $250,000. CD 1/27.

Tex., San Antonio—RESIDENCES—E. J. Burke & Sons, 4220 S. Zarzamora St., 200 single family residences (Negroes), day labor. Approx. $800,000. CD 1/26.

Wash., Seattle—BANK—Seattle-First National Bank, 2 and Cherry Sts., Zone 4, 1 story, bsmnt., 65x120 ft., rein.-con. branch bank, & and Denny Sts., to General Constr. Co., 3840 Iowa St., $310,660. Bids 1/31. CD 1/25.

Ont., Scarborough—APARTMENT—Colgord Constr. Co., Ltd., 338 Weston Rd., Toronto, apartment, Queen St. E. Owner builds. $310,000.

INDUSTRIAL BUILDINGS

BIDS ASKED

▲ Neb., Bellevue—POWER PLANT—B.A. 2/28—Loup River Public Power Dist., Columbus, power plant. Approx. $1,000,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., engrs. CD 5/31.

▲ Mo., St. Louis Co.—PLANT—B.A. in March—Union Electric Co. of Missouri, 315 N. 12 St., St. Louis, Zone 1, (1st unit) 110x175 ft., steel, concrete power generating plant, concrete fdn., 75 to 120 ft. high, at junction Mississippi and Meramac Rivers. Approx. $2,521,500. CD 5/2.

Wis., Green Bay—WAREHOUSE, etc.—B.A. 3/3—Wisconsin Public Service Comn., Bellin Bldg., 2 story, 120x300 ft., concrete, steel, brick warehouse and office. J. E. Somerville, 403 W. Walnut St., archt. CD 6/30.

O., Cincinnati—PLANT—Bids Asked—J. R. Biedinger, engr., Traction Bldg., 432 Walnut St., 1 story, 80x80 ft., concrete block, marine service plant, etc., for R. L. Flerage, 2233 Eastern Ave.

O., Cincinnati—TRUCK TERMINAL, etc.—Bids Asked—Arthur Rabkin, 18 E. 4 St., Zone 2, 50x100 ft., bsmnt, brick, concrete truck terminal and loading dock, incl. offices, Ford St. Eastern Motor Express Co., lessee.

Wis., Eau Claire—FOUNDRY—Bids Asked—National Pressure Cooker Co., Chippewa Rd., 1 story, 160x160 ft.., steel, concrete blocks foundry and machine shop, concrete fdns. and floors. A. A. Larson, 220 S. A. F. Bldg., archt.

Wis., Madison—PLANT, etc.—Bids Asked—Democrat Printing Co., 114 S. Carroll St., 1 story, 280x286 ft., rein.-con., brick, glass block printing plant and office. Law, Law, Potter & Nystrom, 121 S. Pinckney St., archts.

Wis., Marshfield—FACTORY—Bids Asked—Marshfield Industrial Foundation, Inc., Marshfield, 1 story, 14,000 sq. ft. T-shaped steel, brick factory addn., concrete fdn. and floors. G. A. Krasin, 505 S. Chestnut St., archt.

SOON LETS CONTRACT

Calif., Cuyama—GARAGE, etc.—Richfield Oil Co., Richfield Bldg., Los Angeles, soon lets contract 80 x 40 ft. garage and change room bldg., $100,000. Pussill & Samariego, 3275 Wilshire Blvd., Los Angeles, archts.

La., Harlan—WAREHOUSE, etc.—Nishabotna Valley Rural Electric Assn., Harlan, soon lets contract warehouse and shops with offices, connection R. E. A. Assn., $80,000, James Loftus, Omaha Nat'l Bank Bldg., Omaha, Neb., archt. CD 11/14/45.

Tex., Pasadena—CHEMICAL PLANT—Chipman Chemical Co., Pasadena, soon lets contract chemical plant, $100,000. Lockwood & Andrews, Union Natl. Bank Bldg., Houston, engrs.

Tex., Port Arthur—SUB-STATION—Gulf States Utilities Co., Port Arthur, addnl. transformer sub-station, own forces. Approx. $125,000. CD 9/13.

Alta., Calgary—WAREHOUSE—Western Grocers Ltd., 611 Tenth Ave., 1 story, 75x118 ft., brick concrete warehouse addn., to Commonwealth Constr. Co., Ltd., 300 Royal Bank Bldg. Approx. $150,000. Rule, Wynn & Rule, 235-513 Eighth Ave. W., archts.

LOW BIDDERS

La., Gretna—PLANT—Southern Cotton Oil Co., Gretna, Feb. 1, 4 story, 120x222 ft. masonry, steel shortening plant, from Perrilliat-Rickey Constr. Co., 1530 S. Rendon St., New Orleans. $695,226. CD 1/16.

Md., Baltimore—WAREHOUSE, etc.—Dietrich Bros., Inc., 220 E. Pleasant St., 3 story, 50 x 108 x 123 ft., brick, steel warehouse, garage, office, 2700 Loch Raven Blvd., from Baltimore Contractors, Inc., 711 St. Central Ave., $137,600. CD 1/10.

Tex., San Antonio—WAREHOUSE, etc.—Wm. Cameron & Co., 126 Crosby St., Feb. 4, warehouse, wood working shop, from J. B. Martin, Box 37, Grayson St., Station, $254,523. Est. $275,000. CD 2/1.

CONTRACTS AWARDED

Calif., Vernon—WAREHOUSE—Gates Rubber Co., 2240 E. Washington Blvd., Los Angeles, 100x240 ft., warehouse in Central Mfg. Dist., to Wm. P. Neill Co., Ltd., 4814 Loma Vista, Los Angeles. $130,000. Bids 1/27, awarded 1/31. Henry L. Eggers, 627 S. Carondelet St., Los Angeles, archt.

Calif., Visalia—MAINTENANCE YARD, etc.—Southern California Edison Co., Edison Bldg., Los Angeles, maintenance yard and district office alterations and addns., to Lindquist & Lindquist, 715 S. Sowell St., Visalia. Approx. $100,000. Awarded 1/20.

Conn., New Haven—PLANT—Brown & Thomas Auto Co., 264 Whalley Ave., 1 story, 60x178 ft., brick, concrete sales and service plant addn., Whalley Ave., to Dwight Building Co., 152 Temple St. Approx. $70,000. Leo F. Caproni Assoc., 1221 Chapel St., archts.

Fla., Jacksonville—WAREHOUSE—Weaver Wire Products Co., Inc., 2715 N.W. 62 St., Miami, 6,000 sq. ft., steel warehouse and mfg. plant, Wacissa St. in grand crossing suburb. Owner builds. $100,000.

Ill., Stickney—WAREHOUSE, etc.—Certified Grocers of Illinois, 3243 S. Kedzie Ave., Chicago, 1 and 2 story, 400x440 ft., brick, concrete warehouse and offices, to J. Emil Anderson & Son, 1809 Balmoral St., Chicago. A. M. Heda, 1809 Balmoral St., Chicago, archt.

Ind., Griffith—PLANT—Mapes Consolidated Mfg. Griffith, 1 story, 80 x 390 ft., steel, concrete, brick, factory, to Ralph Berslein, Cedar Lake, $130,000. CD 8/1.7.

Md., Baltimore—PLANT—The A. S. Abell Co., (The Sun) Sun Bldg., Baltimore and Charles Sts., 1 story, 14 x 161 x 236 ft. structural steel, concrete, brick, cinder block addn. to 4 story newspaper plant now nearly completed, air-conditioning, to Geo. A. Fuller, 2326 N. Charles St., $700,000. CD 8/9/48.

Tex., Mineral Wells—PLANT—Lone Star Gas Co., 1915 Wood St., Dallas, hypersorption plant, to Foster Wheeler Corp., Sheell Bldg., Houston. Approx. $850,000.

▲ Ont., Amherstburg—PLANT ADDNS., etc.—Brunner Mond Canada Ltd., Amherstburg, calcium chloride plant addns., alterations and new equipment, own forces, $1,000,000. CD 12/10/46.

Ont., St. Catherines—SHIPPING RAMP, etc.—McKinnon Industries Ltd., Ontario St., 1 story, 48x76 ft., steel, brick shipping ramp and gate house, 2 story, 12x43 ft., steel frame, brick washroom structure, to Newman Brothers Ltd., 127 St. Paul St. Approx. $90,000. T. R. Wiley, 32 William St., archt.

Ont., Toronto—STORAGE—Service Station Equipment Co., Ltd., 101 Hanson Ave., 1 story, 60x100 ft. steel, concrete block storage, to J. Robert Page, 211 Davenport Rd. Approx. $75,000.

UNCLASSIFIED

BIDS ASKED

Kansas—RURAL DISTRIBUTION LINES—B.A. 2/21—Sugar Valley Electric Co-operative, Mound City, 140.59 mi. rural distr. lines, 14.74 mi. conversion Miami, Linn, Bourbon, and Crawford Counties $160,000. Frank Horton & Co., Lamar, Mo., engrs. CD 7/14.

Quebec and Maine—STATIONS—B. A. 2/21—Portland Pipe Line Corp., 335 Forrest Ave., Portland, Me., U. S. A., 7 one story brick, steel stations, Portland, Me., U. S. A. to Quebec, Canada, two at Portland, Me., 2 at North Waterford, Me., 2 at Lancaster, N. H., one at North Troy, Vt., all foregoing U. S. A., $400,000. C. D. Batchelder, 335 Forest Ave., Portland, Me., U. S. A., engrs.

Alta., Cold Lake—WHARF—B.A. 2/22—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., harbour imprvs, wharf exten. Approx. $60,000. Plans deposit $20. R. Blais, c/o owner, engr.

B. C., Roberts Creek—WHARF REPAIRS, etc.—B.A. 2/22—R. Fortier, acting sec., Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. wharf repairs and imprvs. Approx. $154,000. Plans deposit $20. R. Blais, c/o owner, engr. CD 10/5.

N. B., North Head (Grand Manan)—WHARF—B.A. 2/22—Act. Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf. Approx. $200,000. Plans deposit $50. R. Blais, c/o owner, engr.

Ont., Port Credit—HARBOR IMPRVS.—B.A. 2/22—Dpt. P. Wks., Hunter Bldg., harbor imprvs. Approx. $152,000. Plans deposit $20. R. Blais, c/o owner, engr. CD 10/4.

Mo., Kansas City—THEATRE—B.A. 2/23—City, City Hall, starlight Theatre, laying of concrete under seats. CD 11/10/47.

South Dakota—RURAL DISTRIBUTION LINES—B.A. 2/23—Upper Grand River Electric Assn., Bison, 233 mi. rural distr. lines, Perkins Co. $250,000. Scott Eng. Co., Watertown, engr. CD 5/16.

Oregon—RURAL DISTRIBUTION LINES—B.A. 2/24—Douglas Electric Co-operative, Pacific Bldg., Roseburg, 93 mi. 7200-12470 volt lines to include clearing and construction, Douglas Co. Plans deposit $10. Wismer & Becker, 1219 28 St., Sacramento, Calif., engrs.

† Oregon—SPRINKLER SYSTEM—B.A. 2/24—U. S. Eng., 628 Pittock Block, Portland, Zone 5, construct sprinkler sys. around parking area on Bradford Island at Bonneville Dam, Bonneville, Serial No. CIVENG-35-026-50-239.

† Oregon—FENCING—B.A. 2/24—Bonneville Power Admin., Box 3537, Portland, Zone 8, fencing Goshen substation, 7 mi. south of Eugene, Lane Co., Inv. 4987. Plans deposit $5. L. C. Stewart, c/o owner, engr.

† Oregon—SUBSTATION—B.A. 2/27—Bonneville Power Admin., Box 3537, Portland, Zone 8, construct Goshen sub-station, 7 mi. south of Eugene Lane Co., Inv. 4994. Plans deposit $25. L. C. Stewart, c/o owner, engr.

Calif., Los Angeles—PARK DEVELOPMENT—B.A. 2/28—Bd. Supervs. Los Angeles Co., 501 Hall of Records, development East Montebello Park, garage, storage bldg., pump house, water sys. etc. $55,220. C. E. Arnold, co. engr. CD 1/15/45.

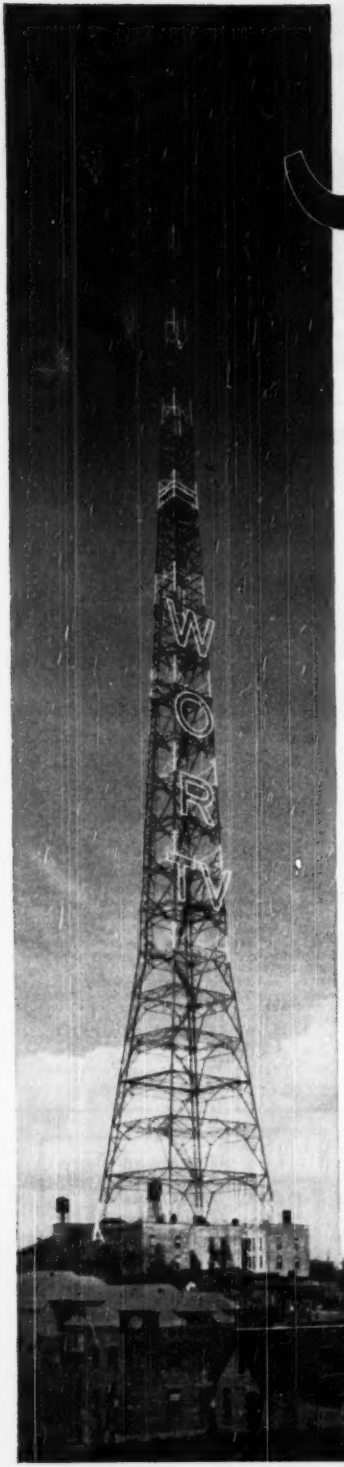
† Mass., Truro—BUILDINGS, etc.—B.A. 2/28—U. S. Eng., Army Base, Boston, Zone 10, six 1 story, rein.-con. concrete block bldgs.; twelve 1 and 2 story, wood concrete block bldgs., utilities, CIVENG 19-016-50-21. Extended date. CD 1/3.

Mo., Kansas City—RADIO STATION—B.A. 2/28—City, City Hall, Police-Fire dept. radio (F-M) station, 27 and Van Brunt Blvds. $300,000, Reed McKinley, dir. P. Wks. John E. Maring, city engr. CD 11/10/47, under Public Bldgs.

† Montana—STEEL, etc.—B.A. 2/28—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., Spec. 2903, furnishing, del. f.o.b. cars shipping point or f.o.b. cars Coram, misc. structural steel, aluminum and rails, Hungry Horse Power Plan, Hungry Horse Proj. L. N. McClellan c/o owner, ch. engr.

Minn., Montevideo—SWIMMING POOL—B.A. 3/1—City, J. Deneen, mgr., municipal swimming pool, $100,000.

(Continued on page 109)



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The tower tapers gracefully from 96-ft-square at the base to 5-ft-square at the top. It is 760 ft high, and in addition, has a 50-ft television antenna. It carries its identity in illuminated 30-ft letters, 30 ft apart.

This four-legged, self-supporting giant of the television field was built from Bethlehem Structural Shapes.

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General Contractor: Mahony-Troast Construction Co., Passaic, New Jersey

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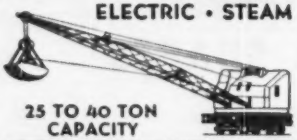

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MOTT CORE DRILLING CO.
HUNTINGTON, W. VA.

(Continued from page 106)

Plans deposit $100. W. Bintz, 301½ S. Washington St., Lansing, Mich., engr. CD 11/14.

† **Oklahoma** — TRANSMISSION LINES — B.A. 3/1 — Southwestern Power Admin., Dpt. Interior, Air Force Plant 3, c/o James V. Alfriend, Jr., actg. admin., Gore, transmission lines, Sect. 1, 154 kv H-frame for 24 mi. Fort Gibson Dam to near Gore, Sect. 2, 6 mi. 154 kv. H-frame line from Tenkiller Ferry Dam to northwest of Gore, $175,000. CD 4/13.

† **Colorado**—CIRCUIT BREAKERS, etc.—B.A. 3/2—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Wilds Spur, Colo., circuit breakers disconnecting switches, grounding blades, for Flatiron Switchyard, Coloraco-Big Thompson Proj., Spec. 2905. L. N. McClellan ch. engr.

† **Montana** — B.A. 3/2—PUMPS—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars, Coram, five 8x8 in. jet pumps, Hungry Horse Power Plant, Hungry Horse Proj., Spec. 2910, L. N. McClellan, c/o owner, ch. engr.

† **Nebraska**—TRANSMISSION LINE—B. A. 3/2—Bureau Reclamation, Dpt. Interior, Casper, Wyo., construct Alliance-Chadron 115 kilovolt transmission line, Missouri River Basin Proj. Transmission Div., Spec. 2901.

▲ **Tex., Houston**—WHARF—B.A. 3/2—Harris County Navigation Dist., c/o Port Comn., Wharf 3, 125x600 ft. open type, steel, rein.-con. wharf. $1,000,000. Lockwood & Andrews, Union Natl. Bank Bldg., engrs. CD 1/20, under LB.

† **Montana**—CONTROL and RELAY BOARD—B.A. 3/14—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., Spec. 2904, furnishing, del. f.o.b. cars shipping point or f.o.b. cars, Havre, 1 control and relay board with access doors, Havre substation, Fort Peck Proj., L. N. McClellan, c/o owner, ch. engr.

† **Oregon**—RAILROAD RELOCATION—B.A. 3/15—U. S. Eng., 628 Pittock Block, Portland, Zone 5, construct sect. of Southern Pacific R. R. relocation, and sect. of Oregon State Hy. 58 relocation, incl. logging, clearing, grubbing, roadway grading, detours, construct all drainage structures, channel changes, and rights-of-way fences, between Railroad Stations L 1760 plus 00 and L 2 2006 plus 00 and between Hy. Stations 1760 plus 00 and 2019 plus 00. approx. 4 mi. south, 5 mi. east of Meridian Dam axis in southeasterly direction approx. 4½ mi., Lane Co., Serial No. CIVENG-35-026-50-242.

† **Oregon**—RAILROAD RELOCATION—B.A. 3/15—U. S. Eng., Pittock Block, Portland, Zone 5, furnishing ballast, ties, switches, rail and appurtenances and construct track from clear point at beginning of Southern Pacific R.R. relocation to Station 1274/00 in connection with construction of Lookout Point Reservoir, Lane Co., CIVENG-35-026-50-246.

† **Ohio**—SWITCHBOARD, CONTROL EQUIPMENT—B.A. About 3/20—U. S. Eng., Madison Ave. and 8 St. West, Huntington 18, W. Va., permanent switchboard and control equip., Delaware Dam, Delaware Reservoir Proj., Olentangy River, Serial No. CIVENG-46-022-50-79.

† **Wyoming**—CIRCUIT BREAKERS, etc.—B.A. 3/21—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, deliv. f.o.b. cars at shipping point or f.o.b. cars Casper Wyo., outdoor power circuit breakers, disconnecting switches, grounding blades, for Alcova switchyard, Transmission Div., Missouri River Basin Proj., Spec. 2914. L. N. McClellan, ch. engr.

Tex., Houston—DRIVE-IN THEATER, etc.—Bids Asked-Long Theatre Interests, Bay City, drive-in theater and shopping center, southern sect. of city. $425,000. CD 2/2.

Tex., South Houston—DRIVE-IN THEATRE—Bids Asked—Long Theatre Interests, Bay City, drive-in theatre, Spencer Hy. and South Shaver St. **$400,000.**

LOW BIDDERS

Calif., Fresno—SWIMMING POOL, etc.—Y. M. C. A., N and Tuolumne Sts., Jan. 26, rein.-con., brick swimming pool, locker rooms, from Raymond Constr. Co., Box 186, **$107,450.** CD 1/4.

Calif., San Francisco — BUS YARD — Public Utilities Comn., City Hall, Jan. 31, Kirkland bus yard, Spec. 353, from Arthur Baum, 1890 Jefferson St., **$235,417.**

▲ **Calif., San Francisco**—TUNNEL—Dpt. P. Wks., City Hall, Feb. 1, Broadway tunnel and approaches, Spec. 20,650 from Morrison-Knudsen Co., Inc., Montgomery St., San Francisco, **$5,243,535.** CD 1/16.

† **Colorado**—CIRCUIT BREAKERS, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Jan. 31, Schedule 1, four 115,000 volt circuit breakers and Schedule 2, seven 115,000 volt disconnecting switches, Colorado-Big Thompson Proj., Longmont, Spec. 2879, from General Electric Co., 650 17 St., Denver, **$86,910.** CD 1/21.

† **N. M., Los Alamos**—TUNNEL—U. S. Atomic Energy Comn., P. O. Box 1539, Los Alamos, cancelled bids to have been opened Feb. 24, tunnel through mountains, near Los Alamos, 8 to 10 ft. diam., 4,500 ft. long, metal plate with concrete lining, 5 mi. long access road, Inv. No. 291-50-27. Approx. **$100,000.** Project indefinitely postponed. CD 12/27.

N. D., Minot—LIGHTING SYSTEM—City, Jan. 25, ornamental street lights, from Holmes Electric Co., Minot, **$51,821.**

▲† **Oklahoma** — RAILROAD RELOCATION — U. S. Eng., Box 61, Tulsa, Jan. 28, 15.6 mi. relocating K. O. & G. Ry line avross the Fort Gibson Reservoir, Muskogee Co,. CIVENG-34-066-50-87, from Hunter Constr. Co., Ada, **$924,116,** est. $1,200,000; 3 concrete, steel bridges for relocating of K. O. & G. Ry. main line across Fort Gibson Reservoir, Muskogee Co., from Austin Bridge Co., 1813 Clarence St., Dallas, Tex., **$507,086,** est. $600,000. CD 1/5.

Tex., Bryan—ELECTRIC DISTRIBUTION LINES— City, Jan. 27, 234 mi. electric distr. lines, from W. J. Thomas & Co., Inc., Hy. 77, Dallas, **$214,760.** Est. $275,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs.

N. S., North Sydney—DOCK, etc.—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., railway terminal dock, enlargement on dock and terminal facilities, from T. C. Gorman (Nova Scotia) Ltd., 123 Ray Bldg., Halifax, Approx. **$1,777,777.** CD 1/17.

Ont., Port Burwell—PIER—Dpt. P. Wks., Hunter Bldg., Ottawa, Feb. 1, pier reconstruction, from Russell Constr. Co., Ltd., Harbor Commissioners Bldg., Toronto, Approx. **$62,884.** CD 1/18.

CONTRACTS AWARDED

California — TOWER FOOTINGS — Southern California Edison Co., 601 W. 5 St., Los Angeles, tower footings for Magundsen Mesa transmission line from Mile 60, tower 2 to Mile 105, tower 2, Los Angeles Co., to Macco Corp., 14409 S. Paramount Blvd., Clearwater, **$185,734.**

Colorado—POWER LINES—Public Service of Colorado, Grand Junction, 69,000 volt power line and associated structures, Grand Junction to Palisade, Mesa Co., force account, **$200,000.** CD 2/4/48.

Ill., Fairfield—DRIVE-IN THEATRE—Harry R. Jones, Lawrenceville, over 500-car capacity drive-in picture theatre, State Hy. 25, north of Y west of city limits, separate contracts. Approx. **$60,000.**

Ind., Greenwood—DRIVE-IN THEATRE—Four-Way Theatre Co., Leander Browning, pres., Greenwood, 500 car capacity drive-in motion picture theatre on State Rd. 135, 2 mi. west of here, separate contracts. **$60,000.**

† **Montana**—CIRCUIT BREAKERS—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., Schedules 6 and 7, Items 18 and 18a of Schedule 9, two 161,000 volt, one 115,000 volt, three 14,400 volt circuit breakers, twenty-four 15,000 volt disconnecting switches with spare parts for Havre sub-station, Fort Peck Proj., Spec. 2840, to Pacific Electric Mfg. Corp., 5815 3 St., San Francisco, Calif., **$101,445.** Bids 12/20, awarded 1/26. CD 11/23.

▲ **New York**—PIPE LINE—Central Hudson Gas & Electric Corp., South Ave., Poughkeepsie, 40 mi. 10 in. pipe line distributing natural gas from Tuxedo to Highland, to Britton Contr. Co., Washington, Pa. Approx. **$1,700,000.** CD 12/6.

O., Youngstown—SPORTS ARENA—Victor Shutrump, Inc., 357 Midlothian Bldg., 2 story 100x225 ft. sports arena. Owner builds.

Oklahoma—RURAL DISTRIBUTION LINES—Cotton Electric Co-operative, Walters, 128 mi. rural distr. lines, Cotton Co., to Neeley Bros. Constr. Co., Hollandale, Miss., **$190,275.** Est. $200,000. Bids 1/17, awarded 2/1. CD 1/4.

Texas—TRANSMISSION LINES—Central Power & Light Co., 120 N. Chaparral St., Corpus Christi, 16 mi. 60,000 volt transmission line between Mission and Rio Grande City, force account. Approx. **$115,000.** CD 1/13.

Texas—TRANSMISSION LINES—Central Power & Light Co., 120 N. Chaparral St., Corpus Christi, 7 mi. 12,000 volt electric transmission line between North Pharr and Edinburg, force account. Approx. $50,000. CD 1/17.

Texas — COMPRESSOR and PURIFICATION UNIT — El Paso Natural Gas Co., Bassett Tower, El Paso, 15 m. cu. ft. daily capacity compressor and purification unit, near McCamey, own forces. **$1,250,000.** CD 3/18/49.

Tex., Corpus Christi—PIPE LINES—Humble Pipe Line Co., Weber Bldg., crude oil pipe lines in area of docks, force account. Approx. $50,000. CD 1/27.

Tex., Corpus Christi—WHARVES—Humble Pipe Line Co., Weber Bldg., 2 steel wharves, own forces. Approx. $92,000. CD 1/27.

Tex., Dallas—POWER LINES, etc.—Dallas Power & Light Co., Dallas Power & Light Bldg., electric power lines running Dist. stations to new zones, $450,000; electric power sub-station in outlying district, $550,000, force account. CD 2/3/49, under Industrial Buildings.

Tex., Floresville—TRANSFORMER—City Public Service Bd., 201 N. St. Marys St., San Antonio, electric transformer, doubling capacity of the area, force account. Approx. $90,000.

Tex., Fort Worth—BASEBALL STADIUM—Fort Worth Baseball Club, N. E. 7 and N. Jones St., baseball stadium, to General Steel Co., 3001 W. Pofford St. **$152,900.** Herman G. Cox, 401 Neil P. Anderson Bldg., archt. CD 5/20.

Tex., San Antonio—GAS MAIN—City Public Service Bd., 201 N. St. Marys St. and United Gas Pipe Line Co., Alamo Natl. Bldg., addnl. gas main constr. off Bander Hy. to tie into UGLPC line, to H. B. Zachry Co., Box 2570, Approx **$140,000.** CD 2/2.

Tex., South Houston—DRIVE-IN THEATER, etc.—Long Theatre Interests, Bay City, drive-in theatre and community center, Spencer Hy. and S. Shaver St., to W. E. Peck Citizens State Bank Bldg., Houston. Approx. **$460,000.** Est. $400,000. CD 2/3.

Ont., Peterborough — ARENA — Municipality, rein.-con. steel frame, masonry arena, to R & B A. Ryan Ltd., 78 Logan Ave., Toronto, **$130,092.** Blackwell & Craig, 147 Hunter St., archts.

Proposal Advertisements see pp. 109 to 112

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you win

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Contractors, the country over, check the OFFICIAL PROPOSAL SECTION of ENGINEERING NEWS-RECORD each week in order to make bids on work to be done. For over a half century, Federal, State and Municipal governments have advertised in this Section to secure the lowest possible bids from the highest type of bidder.

The extremely low price of $1.00 per line for advertising in this Section is but a fraction of the savings to be realized through its use.

Official Proposals Section

ENGINEERING NEWS-RECORD

330 W. 42nd St., New York 18, New York

OFFICIAL PROPOSALS

Bids: March 2, 1950 (548)

Construction of Overpass

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 4, SECTION 5

Construction of Route 4, Section 5B, Westbound Overpass at Route S4B and Connection to West Saddle River Road, Borough of Fairlawn, Bergen County, Federal Project U-189(3). Length 0.268 Miles.

Roadway Items

Estimated:

3,100 cu. yds.	Roadway Excavation—Earth
15,500 cu. yds.	Wet Excavation
85,600 cu. yds.	Borrow Excavation
5,000 sq. yds.	4" Macadam Base Course
2,800 sq. yds.	3" Modified Penetration Macadam Intermediate Course
580 tons	Pavement, Type MA-BC-1
5,000 sq. yds.	10" Reinforced Concrete Pavement Surface

Bridge Items

1,544 cu. yds.	Concrete in Structures
233,600 lbs.	Structural Steel
71,950 lbs.	Reinforcement Steel in Structures

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N.J., on Thursday, March 2, 1950, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by Section 1, Public Laws 834, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, Fulton & Paterson Streets, Paterson, N.J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N.J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N.J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

OFFICIAL PROPOSALS

Bids: March 2, 1950 (554)

Channel Dredging

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Channel Dredging in Barnegat Bay

Channel Dredging in Barnegat Bay in the vicinity of the new State Highway Route 37 Bridge, Dover Township, Ocean County. The total quantity estimated for the project is 143,066 cubic yards.

Channel Dredging in Manasquan River

Channel Dredging in Manasquan River in the vicinity of the new State Highway Route 35 Bridge, Boroughs of Brielle and Point Pleasant, Counties of Monmouth and Ocean. The total quantity estimated for the project is 125,214 cubic yards.

Bids for each of the above projects will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N.J. on March 2, 1950, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper prequalification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bids will also be accepted from bidders who are prequalified in a sufficient amount for this class of work by any other State Department provided evidence of such prequalification is presented prior to the time set for the opening of bids. In either case, bidders must also submit a revised financial statement and statement of plant and equipment on forms supplied by the Highway Department with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N.J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N.J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Department of Commerce, Bureau of Public Roads, February 3, 1950. SEALED BIDS will be received at the office of Bureau of Public Roads, Gatlinburg, Tennessee, until 1:30 p.m., E.S.T. MARCH 7, 1950, for the construction of Project 6A1, Great Smoky Mountains National Park, Swain County, North Carolina. Length 5.348 miles. The approximate quantities of the more important items are 50 acres Clearing and Grubbing, 325,000 cu. yd. Excavation, 34,000 tons Crushed Gravel or Crushed Stone Base Course and 5,730 lin. ft. Concrete Culvert Pipe. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10 cash or certified check will be required to insure their return within 15 days after opening of bids. Plans, specifications and proposal forms may be obtained from the office of the Division Engineer, 1440 Columbia Pike, Arlington, Virginia, or from the address given above. H. J. Spelman, Division Engineer. (552)

OFFICIAL PROPOSALS

Bids: March 20, 1950 (555)

Refuse Incinerator Plant

NOTICE TO BIDDERS
REFUSE INCINERATOR PLANT
FOR THE
VILLAGE OF PORT CHESTER,
WESTCHESTER COUNTY,
NEW YORK

Sealed bids in opaque envelopes for Contracts 1A and 1B, covering the construction of a new Refuse Incinerator plant; and Contracts 2, 3 and 4, covering the Heating, Plumbing and Electrical Systems, respectively, will be received by the Village Clerk at a meeting of the Board of Trustees, to be held in the Court Room in the Police Headquarters Building, 350 North Main Street, Port Chester, Westchester County, New York, until eight (8) o'clock P.M., Eastern Standard Time, MARCH 20, 1950, and then at said place, publicly opened and read aloud.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications and Form of Performance Bond may be examined at the office of the Village Clerk, 110 Willett Avenue, Port Chester, New York, and copies thereof may be obtained upon payment of Fifteen ($15.00) Dollars for each set. Any bidder, upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set within ten (10) days after the date for the receipt of bids, will be refunded Five ($5.00) Dollars. Checks given as deposits on plans and specifications shall be made payable to the Village of Port Chester.

In general, the work included consists of the construction of a new crane and bin type refuse incinerator plant of 120 tons per day capacity, complete with earth ramp, grading and the demolition of the existing plant; all of which shall be performed with a minimum of interference with the operation of the existing incinerator plant during construction.

CONTRACT NO. 1A covers the construction of the BUILDING and appurtenances. CONTRACT NO. 1B covers the FURNACES and appurtenant mechanical equipment. Alternate bids are permitted on mechanically stoked type furnaces and on manually stoked circular type furnaces. Completion time 300 consecutive days.

The HEATING, PLUMBING and ELECTRICAL installations are to be executed under CONTRACTS 2, 3 and 4, respectively.

Each bidder must deposit with his bid, but not enclosed in the envelope containing his bid, an amount of not less than Five (5%) percent of the base bid in the form of cash or a certified check (bid bonds will not be acceptable), subject to the conditions provided in the Information For Bidders.

The Village of Port Chester, Westchester County, New York, reserves the right to reject any and all bids, waive any informalities, or to accept that bid, acceptance of which will, in the judgment of the Board of Trustees of the Village, best secure the public interest and efficient work.

No bidder may withdraw his bid within Forty-five (45) days after the date of opening thereof.

DANIEL A. O'CONNELL,
Clerk of the Village of Port Chester,
New York

Dated: February 16, 1950

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Channel Improvement on Red Lake River, Minnesota, Stage No. 2, will be received in this office until 11:00 A.M., C.S.T., 21 February 1950 and then publicly opened. Further information upon application. (576)

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Upper Approach Channel Dredging, Lock and Dam No. 10, Mississippi River, Guttenberg, Iowa, will be received in this office until 11:00 A.M., C.S.T., 23 February 1950, and then publicly opened. Further information upon application. (577)

(Continued on page 111)

OFFICIAL PROPOSALS
(Continued from page 110)

Bids: February 20, 1950 (539)

Hudson River Pumping Plant

CONTRACT 427

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Monday, February 20, 1950, for Contract 427, for designs, construction and installations necessary to establish at Shaft 6 of the Delaware aqueduct, complete with all equipment and appurtenances and ready for use, an electrically-operated or a direct-connected, Diesel-operated pumping plant capable of pumping 100 million gallons per day of water from the Hudson river into the Delaware aqueduct against a head of 600 feet, and a chlorinating plant capable of satisfactorily sterilizing the pumped water before it enters the aqueduct, together with suitable buildings for housing said plants; and for the operation of said plants for a period not to exceed four months subsequent to their completion, all located near Chelsea, Town of Wappinger, Dutchess county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of one hundred and fifty thousand dollars ($150,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, HENRY HESTERBERG, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: March 2, 1950 (551)

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for the following projects:

* * *

CONTRACTS NOS. 8, 8A and 8B

The work to be done under these Contracts involves grading, drainage and incidental work in connection with the construction of the New Jersey Turnpike, Section 3, between Moorestown and Allentown, in Burlington and Mercer Counties, New Jersey.

Principal items of work for Contracts Nos. 8A and 8B include:

	Contract No. 8A	Contract No. 8B
Clearing and grubbing	38	19 acres
Excavation and grading	1,852,700	1,930,700 cu.yds.
Topsoiling	264,000	277,800 sq.yds.
Concrete	120	180 sq.yds.
Reinforcement steel	8,800	12,000 lbs.
Reinforced concrete pipe—various sizes	7,840	10,310 lin. ft.
Underdrains—Various types and sizes	480	1,050 lin.ft.

Principal items of work for Contract No. 8 equal the sum of the quantities listed for Contracts Nos. 8A and 8B.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after January 31, 1950, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey, and at the office of the Engineers, Brinckerhoff, Hall & MacDonald, 51 Broadway, New York 6, New York.

Plans showing grading cross-sections (161 Sheets) may be examined in the office of the Authority or at the office of the Engineers, including the Field office at 55 Main St., Mt. Holly, N. J.

OFFICIAL PROPOSALS

* * *

CONTRACTS NOS. 9, 9A, and 9B

The work to be performed under these Contracts involves grading, drainage structures, and incidental work in connection with the construction of the New Jersey Turnpike, Section 4, between Allentown and the Raritan River, in Mercer and Middlesex Counties, New Jersey.

Principal items of work for Contracts Nos. 9A and 9B include:

	Contract No. 9A	Contract No. 9B
Excavation and grading	2,199,000 cu.yds.	2,195,000 cu.yds.
Topsoiling	390,000 sq.yds.	400,000 sq.yds.
Concrete	1,500 cu.yds.	2,100 cu.yds.
Reinforcement steel	135,000 lbs.	235,000 lbs.
Precast concrete bearing piles	.....	3,270 lin.ft.
Underdrains—Various sizes	17,200 lin.ft.	7,600 lin.ft.
Concrete pipe culverts—Various sizes	5,830 lin.ft.	7,690 lin.ft.
Corrugated metal pipe culverts—Various sizes	2,410 lin.ft.	1,800 lin.ft.
Gravel surface course	7,700 cu.yds.	9,000 cu.yds.

Principal items of work for Contract No. 9 equals the sum of the Quantities listed for Contracts Nos. 9A and 9B.

Contract documents may be seen, and may be inspected by prospective bidders during office hours, after January 31, 1950, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey and at the office of the Engineers, DeLeuw, Cather & Company, 106 Mercer Street, Hightstown, New Jersey.

Plans showing grading cross sections (425 sheets) may be examined at the office of the Authority or at the office of the Engineers.

* * *

CONTRACT NO. 11

The work to be performed under this Contract involves the clearing and grubbing of site including demolition of all buildings, sheds and other structures within the Right-of-Way of the Turnpike indicated on the Plans to be demolished; stripping of all material in areas designated; rock excavation and disposal of same in embankment; excavation of all unsuitable material and disposing or stock piling of same as specified; furnishing, placing and compacting various graded borrow excavation materials in embankments; stabilizing existing ground by the use of vertical sand drains in indicated areas; excavating portions of embankment placed as overload and depositing the materials so excavated on the embankments; excavating ditches for mosquito control; furnishing and placing reinforced concrete culvert pipe for drainage; final cleaning up of site and other incidental work in connection with the construction of the New Jersey Turnpike from the North Abutment of the Hackensack River Bridge to a point fifty (50) feet South of Wiegands Lane (Secaucus Avenue) in the Town of Secaucus, Hudson County, New Jersey.

Principal items of work include:

Clearing and grubbing	lump sum
Roadway excavation, earth	20,000 cu.yds.
Roadway excavation, rock	128,000 cu.yds.
Roadway excavation, muck	78,000 cu.yds.
Borrow excavation	1,113,000 cu.yds.
Vertical sand drains	56,000 lin.ft.
Reinforced concrete culvert pipe storm drains	1,030 lin.ft.

Contract documents may be seen, and may be inspected by prospective bidders during office hours, after January 31, 1950, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey and at the office of the Engineers, Edwards and Kelcey, Frederic R. Harris, Inc. and O. J. Porter & Company, Associated, 3 William Street, Newark, New Jersey.

Contract documents will be furnished on a deposit of $15.00 for each set not including the Plans showing the grading cross-section and an additional deposit of $15.00 for each set of the Plans showing the grading cross-sections upon application to the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey, and such deposits will be refunded upon return of the coneract documents in a good condition within 10 days after the opening of the proposals.

* * *

CONTRACT NO. 12

The work to be performed under this Contract involves construction of six pairs of concrete piers and two pairs of abutments, together with necessary excavation, cofferdams, fender system and other incidental work included in the Substructure

OFFICIAL PROPOSALS

for the dual Turnpike bridge over the Rahway River between the Borough of Carteret and the City of Linden.

Principal Items of work include:

Open foundation excavation	2,600 cu.yds.
Concrete, underwater	1,450 cu.yds.
Concrete, in the dry	3,150 cu.yds.
Cofferdam work	.....
Steel bearing piles	315,000 lbs.
Reinforcement steel	265,000 lbs.
Granite masonry	11,300 cu.ft.

Contract documents may be seen, and may be inspected by prospective bidders during office hours, after January 31, 1950, at the office of the New Jersey Turnpike Authority, 65 Prospect St., Trenton, New Jersey, and at the office of the Engineers, Fay, Spofford & Thorndike, 11 Beacon Street, Boston, Massachusetts, and 25 Livingston Ave., New Brunswick, New Jersey.

* * *

A deposit of $15.00 is required for each set of contract documents as follows:

Contract No. 8 (including Nos. 8-A and 8-B)

Contract No. 9 (including Nos. 9-A and 9-B)

Contract No. 12

Such deposits will be refunded upon return of the Contract documents in good condition within 10 days after the opening of the Proposals.

Proposals for Contracts Nos. 8, 11 and 12 will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey, until 10:30 o'clock on the morning of February 21, 1950 and thereafter in the Auditorium of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey, until 11:00 A.M. on the same date, at which latter time and place said proposals will be publicly opened and read.

The date for receiving Proposals for Contract No. 9 is February 24, 1950, at the same place and at the same hours.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal a revised financial statement and a statement of plan and equipment.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications for Construction of the New Jersey Turnpike and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the Contract on the outside, and must be accompanied by a *certified check* drawn to the order of the New Jersey Turnpike Authority *and a proposal bond, each for not less than five per cent of the amount of the proposal*, but not less than $500.00 nor more than $200,000.00 and must be delivered with proposal on or before the hour named. Copies of the proposal form to be used for submitting proposals, of the form for proposal bond, of the form to be used for financial statement and plan and equipment statement to be submitted with proposal, and special addressed envelope are furnished in detached form with the Contract Documents.

The Contract will be awarded or proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals.

January 31, 1950.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
Chairman

(Continued on page 112)

"SEARCHLIGHT"
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Opportunity Advertising
—to help you get what you want.
—to help you sell what you no longer need.
Take Advantage Of It
For Every Business Want
"THINK SEARCHLIGHT FIRST"

U. S. Government
(Continued from page 111)

NORTH PLATTE PROJECT, Design Section, Casper, Wyoming. January 30, 1950. Specifications No. VII-109. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. VII-109 will be received at Torrington, Wyoming until 2 p.m., Mountain Standard Time, February 28, 1950, and then publicly opened for furnishing labor and materials and performing all work for the rehabilitation of the Fort Laramie canal desilting works near Whalen, Wyoming, North Platte Project, Wyoming-Nebraska.

Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: A. A. Batson, Regional Director, New Customhouse, Denver, Colorado; I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming; and C. H. Rader, Construction Engineer, Torrington, Wyoming. The specifications will consist of two volumes, "Special Provisions" and "Standard Specifications for Construction of Canal Systems, March 1949." No charge will be made for copies of the Standard Specifications or for copies of the Special Provisions furnished for bidding purposes; for others, the charge will be $0.30 per copy for the Standard Specifications and $0.25 per copy for the Special Provisions, not returnable. (547)

OFFICIAL PROPOSALS

Bids: March 2, 1950 (550)

Construction of Sewage System

TOWN OF PLAINVILLE, CONNECTICUT
NOTICE TO CONTRACTORS

Bids will be received by the Town of Plainville on March 2, 1950, at 3:30 P.M. Eastern Standard Time, for construction of a Sewerage System. Proposals will be received on the following contracts:

Contract VII—Sewerage System—West and East Sections
Contract VII-A—Sewerage System—West Section
Contract VII-B—Sewerage System—East Section

Information may be obtained at the offices of Bowe, Albertson & Associates, Engineers, 110 William Street, New York City, and at the office of the Board of Selectmen, Town Hall, 29 Pierce Street, Plainville, Connecticut, between the hours of 10 A.M. and 4 P.M. daily except Saturdays, Sundays and holidays.

THE BOARD OF SELECTMEN OF THE TOWN OF PLAINVILLE, CONNECTICUT
By: RONALD W. HYATT
First Selectman
BOWE, ALBERTSON & ASSOCIATES
Engineers

Bids: March 2, 1950 (549)

Construction of Bridge

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

BRIDGE NO. E3.11

Construction of Bridge No. E3.11 over Annaricken Creek, Monmouth Road, 1.5 miles northeast of Jobstown, Springfield Township, Burlington County, Federal Aid Secondary Project No. S156(4).

Estimated:
1 unit Clearing Site
419 cu. yds. Foundation Excavation
2,440 lin. ft.—12" Hardwood Piles
14,920 lbs. Reinforcing Steel
14,136 lbs. Structural Steel
329 cu. yds. Class "C" Concrete

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Thursday, March 2, 1950, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and Supplements and by Sections 2, 3 and 4, P. L. 521, 78th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, Federal and High Streets, Burlington, N. J. or 55-61 Main Street, Mt. Holly, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to common labor employed on this contract shall be 75¢ per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J. and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

ENGINEER TO head highway design section Montgomery County (Maryland) Department of Public Works. Permanent position. Salary: $4800 to $5760. Qualifications: Five years' experience in highway design; two years' experience in position of responsibility. Write Montgomery County Personnel Board, Court House, Rockville, Maryland.

LANDSCAPE ARCHITECT and Site Planner, two or more years experience, for work in connection with the landscape development of schools, hospitals, parks. Write full particulars, including salary required and date of availability to P-2251, Engineering News-Record.

POSITIONS VACANT

STRUCTURAL CHECKER-detailer. All type structures. State qualifications, availability. Location East. P-1818, Engineering News-Record.

WANTED, SEVERAL engineering graduates, under 35, by large industrial fire prevention organization maintained by national insurance group for field work involving periodic inspections and special consulting service. Permanent. P-1994, Engineering News-Record.

DETAILER EXPERIENCED in preparing details for structural steel for bridges and buildings. Steady employment with one of the largest steel fabricators in the Southwest. State experience, references, age and salary requirements. P-2139, Engineering News-Record.

ESTIMATOR WANTED by General Contracting Firm located in Kansas. Applicant to be under 45 years of age, experienced in estimating all types of General Building Construction. If interested, advise age, education, experience and salary desired. P-2099, Engineering News-Record, 520 N. Michigan Ave., Chicago, Ill.

CARPENTER SUPERINTENDENT, for form construction on concrete dam located in Western Kansas. State age, experience, and salary expected. Elmer C. Gardner, Inc., P. O. Box 252, Ellis, Kansas.

CONSTRUCTION SUPERINTENDENT experienced in handling large private multiple housing project. Work located in Ohio. Give qualifications, references, salary expected and enclose recent photograph. Steady job for the right man. P-2194, Engineering News-Record.

WANTED: REGISTERED Engineer for work in Ohio, with building construction firm, 30 years in business, specializing in factory, mill and commercial buildings. Prefer man with experience in estimating, buying, and some sales experience. Firm does, roughly, $2,000,000.00 of business a year, consisting of heavy concrete work, structural steel, masonry and carpentry construction. P-2230, Engineering News-Record.

POSITION VACANT

PUBLIC WORKS Engineer. For responsible charge of department. Must be aggressive contact man for new business and have solid design experience in water, sewer, structural, etc. Location Atlanta and only applications from South considered. P-2222, Engineering News-Record.

UNDERGROUND AND Strip mine operating superintendent for progressive non union combination strip and underground mine located in southwestern old Virginia. Must be capable of layout work, supervision and have a good practical background. References are necessary. Address P-2139, Engineering News-Record.

STRUCTURAL STEEL Detailer-checker-layout man to handle difficult work. Salary open. Walter & Wilham, Second National Bank Bldg., Cincinnati 2, Ohio.

CIVIL ENGINEER wanted for a responsible permanent position with a large public utility located in eastern Pennsylvania. Must have a broad experience, a substantial portion of which has been in hydraulics. The position presents an excellent opportunity to the right man. Apply by letter stating age, education, detailed experience and salary requirements. P-2275, Engineering News-Record.

EXPERIENCED BRIDGE Designer for Consulting Engineer's Office. Location: South. Give references, complete information on education, experience, salary expected and earliest date available. P-2301, Engineering News-Record.

WANTED EXPERIENCED civil engineer for building construction, sewer and water mains, and bridges. Must be able to take off quantities, supervise and if necessary take over complete charge. State wages, experience and when available. In Wisconsin. P-2300, Engineering News-Record.

EMPLOYMENT SERVICES

SALARIED PERSONNEL. $3,000-$25,000. This confidential service, established 1927, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

SELLING OPPORTUNITIES OFFERED

DISTRICT SALES Manager wanted for eastern territory, New York headquarters, handling construction equipment. Permanent connection. Give experience and salary expected. Write SW-2213, Engineering News-Record.

CONSTRUCTION EQUIPMENT Salesmen: Young men with mechanical or civil engineering background, familiar with compressors, pumps, and concrete handling equipment. Preferably men with following of contractors for both Chicago and New York territories. Old established firm handling nationally known lines of contractors machinery. Salary and commission. Reply giving resume of background and education. SW-2306, Engineering News-Record.

(Continued on opposite page)

SEARCHLIGHT SECTION

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UNDISPLAYED RATE:
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$1.20 cents a line, minimum 4 lines. To figure advance payment count 5 average words as a line.
INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.00 a line an insertion.

INFORMATION.
BOX NUMBERS care publication New York, Chicago or San Francisco offices count as 1 line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:
The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

NEW ADVERTISEMENTS received by February 17th appear in March 2nd issue subject to limitation of space available.

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (40 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.
R. W. BIXBY, Inc., 272 Ellicott Bldg., Buffalo 2, N.Y.

(Continued from opposite page)

POSITIONS WANTED

EXPEDITER AND/or Scheduling Engineer. Over 15 years diversified experience; Industrial, Commercial, Governmental, and Institutional expansion programs. Guarantee satisfactory service and excellent past record. PW-2071, Engineering News-Record.

CHIEF ESTIMATOR for General Contractor Available. Experienced all types General Construction. Current volume $60,000,000 per annum. Base salary $12,000 per year. Excellent references. PW-1813, Engineering News-Record.

OWNERS REPRESENTATIVE. Guarantee contractor's complete compliance with owner's requirements. Over 15 years experience, including construction superintendent with reputable contractors and major industries. PW-1894, Engineering News-Record.

BUILDING SUPERVISOR, Party Chief, Architects Representative—wants work in Latin America with contractor or architect. A-1 reference. Single—age 46. Box 801, Coral Gables, Florida.

SANITARY ENGINEER available. Complete knowledge of business management, industrial waste and water surveys, design of water treatment and waste treatment plants; supervision of construction. Have vast knowledge regarding utilities operations and problems and have at present a large volume of national and international business contacts. Address replies to PW-2017, Engineering News-Record.

MANAGER OR Superintendent. Dams, Bridges and Marine Construction. Twenty-five years experience. Practical and Engineering background. Member ASCE. Available soon. PW-2115, Engineering News-Record.

STRUCTURAL DESIGNER — B.C.E., Age 25. Single. Four years experience designing reinforced concrete and structural steel industrial buildings. Prefer eastern location. PW-2114, Engineering News-Record.

CIVIL ENGINEER-Executive. Registered. 15 years diversified field and office experience, specializing in administration and contractural relations on buildings, bridges, roads, and utilities. Available March 1st. PW-2145, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT over 17 years experience as superintendent on all types of buildings and bridges, aggressive and producer, graduate engineer, practical experience covers complete work, sober, married with family, prefers midwest location. Address PW-2197, Engineering News-Record.

ATTENTION CONTRACTOR — Project Manager-General Superintendent - Construction Superintendent desires connection. Graduate Registered Civil Engineer. Twenty-two years diversified experience—Bridges, dams, power plants, industrial plants, sewerage disposals, sewers, tunnels, heavy foundations, coffer dams, pile driving, and housing developments. Labor relations expert. Energetic, best of health. Available immediately. Resume of experience and references furnished. PW-2204, Engineering News-Record.

(Continued on the following page)

WANTED

SUPERINTENDENT

With heavy construction experience
Sewer Work Grade Crossing
Location New York State
Give Age, Experience, Salary and Full Particulars

P-2285, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT / MANAGER

Expanding construction firm located in Northern Ohio specializing in Water and Sewage Treatment Plants has opening for A-1 project superintendent or manager. Give age, experience, references, and salary expected. Also include photograph if possible.

P-2069, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

STRUCTURAL STEEL ESTIMATOR

Well known New England fabricating company has an exceptional opening for young experienced structural steel estimator. A real opportunity exists for a man with estimating and sales ability. Give in detail experience, education, etc. References will be required. Replies held strictly confidential.

P-2133, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

WANTED—GENERAL SUPERINTENDENT

By established General Contractor doing work throughout middlewest, headquarters in Chicago. Will only consider top-notch, hard-hitting superintendent experienced in construction of all types of buildings. Salary commensurate with ability. Give full particulars—experience, education, age and references. Replies confidential.

P-2223, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEER, LICENSED, in New York State

Experienced in bridge construction and alterations. Permanent position for right man. Reply stating experience to

P-2256, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

ESTIMATOR

Wanted by Phila. firm for large sewers, bridges, etc. Must have had experience with contractors in similar work. State salary, experience and when available.

P-2299, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

WANTED
BRIDGE DESIGNERS, DESIGNER DRAFTSMEN, RESIDENT HIGHWAY ENGINEERS, SOILS ENGINEER

Experienced men wanted. State qualifications, age, salary and date available in first letter. Construction period, 24 months. Location, Eastern or Western Pennsylvania.

P-1617, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

WANTED ENGINEER

to supervise design for major city street paving and drainage programs. Must be graduate engineer, not less than five years experience in this field, fully qualified to assume direct charge under chief engineer. Immediate. Salary commensurate with qualifications. Permanent employment in Gulf Coast Area. Reply P-2153.

DESIGNING ENGINEER

structural: bridges, tunnels, and other heavy structures. Graduate engineer, not less than ten years experience. An excellent opportunity and a permanent position for right man. Salary commensurate with qualifications. Location on Gulf Coast. Reply

P-2154, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

DISTRIBUTORS and SALES AGENTS WANTED

for operating and maintenance specialties including coatings, and boiler water treatment endorsed by many foremost industrial concerns.

Various territories throughout the United States available.

Our agents are aware of these openings

RW-2310, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

WANTED
CONSTRUCTION SUPERINTENDENT ESTIMATING ENGINEER

Experienced men only should apply giving complete record. No interviews before submitting application in writing.

THOMAS BRYAN AND ASSOCIATES, INC.
620 M & M Bldg., Houston 1, Texas

WANTED—SALES ENGINEER

For established firm in the Pittsburgh district making materials used widely in bridge construction and industrial plants. Must be experienced and preferably have civil engineering education.

P-1881, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

LEARN TO ESTIMATE

Today, more than ever before, you must know how to analyze building costs. If you want to become a successful builder, learn how to prepare a correct estimate in a hurry. Get in on the profitable work now available wherever you turn. Your success is assured if your estimates are right; otherwise you are licked before you start.

The Tamblyn System of Estimating will make a real estimator out of you in a few weeks of your spare time. We are so sure that you will want to learn it, that we will send you our complete home study course for ten days examination absolutely free. If you don't think it is the finest thing you ever saw, just return it and it won't cost you a cent. If you like it and want it, send us $8.75 when 10 days are up and $7.50 per month until $30.75 is paid.

This estimating system is based on forty years of actual construction experience. It has been sold all over the world for more than twenty years. Thousands of estimators and contractors swear by it. Our offer isn't hot air and big talk. We don't give you a diploma or a lapel button, but we do teach you down to earth estimating which will bring you profitable business.

Just send your name and address today, and we will mail you the complete course at once for your approval.

TAMBLYN SYSTEM

1115 So. Pearl St., E-382

Denver, Colo.

A COURSE OF INSTRUCTION BY MAIL IN

STRUCTURAL ENGINEERING

Thirty-ninth Year

OUR COURSES HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations

- Complete Structural Engineering Course.
- Public Works Structures.
- Architectural Engineering.
- Special Course C (State Board Exams).
- Reinforced Concrete Engineering.
- Structural Steel Designing.

Monthly payments permissible. Information sent without obligation. WRITE TODAY

WILSON ENGINEERING CORPORATION

College House Offices • Harvard Square • Cambridge, Mass., U. S. A.

WANTED

PRE-CUT WOODWORKING CONTRACTS

ANY OBJECT MADE OF WOOD

From Concrete Forms To Prefabricated Buildings

GARAGES A SPECIALTY

Any Phase of Carpentry. Location Long Island

Send Specs. For Lowest Bids

CW 2278, Engineering News-Record

330 W. 42 St., New York 18, N. Y.

"WE HAVE FED MILLIONS"

30 Years Experience in the

HOUSING and FEEDING of MEN

Valentine B. Kane & Assoc.

1410 State St. New Haven 11, Ct.

A National Organization for

FEEDING and HOUSING

employees of Contractors . . . Railroads . . . Industries . . .

OLYMPIC COMMISSARY CO.

CHICAGO 6, ILL.: 302 S. Canal St. Phone HA 7-1670

SEATTLE: 316 Second Ave., South

MINNEAPOLIS: 105 Nicollett Ph: Atl 4845.

WANTED

#12 Grader

10 ton 3 wheel roller

LeTourneau Model LS

A & J BUYERS INC.

3580 Sheridan Dr., Buffalo 21, N. Y.

POSITIONS WANTED

(Continued from preceding page)

SUPT. INDUSTRIAL Building. Construction proven record in field. General and all trades background. Proficient in buying and sub-contracting used to turn key jobs. Strictly sober. Best acquainted in central and north eastern states; same company many years. Want change. PW-2262, Engineering News-Record.

STRUCTURAL ENGINEER: C.E. Grad. 16 years experience heavy construction office and field. Desires responsible position, will relocate. PW-2271, Engineering News-Record.

SALES ENGR. industrial buildings now employed, available Mar. 1st, would like change. Also good record in field as Gen. Supt. PW-2260, Engineering News-Record.

MASTER MECHANIC, Equipment Supt., Mechanical Operating Engineer, over twenty-five years' experience with erection, repair and maintenance of heavy industrial equipment, power house, pumping stations and marine equipment, etc., available immediately. Go anywhere. PW-2305, Engineering News-Record.

OWNERS REPRESENTATIVE or Supt. of Const. of Maint. industrial work. Years of experience in Supervisory const. and maint. with all trades including machinery. PW-2261, Engineering News-Record.

PROJECT MANAGER. Grad. C. E. desires connection with NYC or North Jersey Contractor. All around man, 32. Good personality. Excellent references. PW-2309, Engineering News-Record.

GRAD. C.E., yg. single, 4 yrs. drafting and design, 9 mos. Power Plant construction exp.; desires construction or design position. Will relocate. PW-2087, Engineering News-Record.

CHIEF DRAFTSMAN, Structural, desires connection fabricating shop. Thoroughly experienced shop standards. Capable organizing and producing drawing room results. PW-2240, Engineering News-Record.

SELLING OPPORTUNITY WANTED

SALES ENGINEER. Over 17 years diversified engineering experience, including management of construction for Commercial, Industrial, and Governmental work. Prefer sales. Guarantee excellent past record and future results. BA-2072, Engineering News-Record.

BUSINESS OPPORTUNITIES

Will buy

long established and active land surveying business. Substantial proof to volume of business, etc. BO-2241, Engineering News-Record.

Registered Surveyor-

Engineer desires association with established engineer considering retirement. East preferred. Give full details. BO-2287, Engineering News-Record.

Have equipment and trucks

for Railroad Construction, etc., vicinity Chicago. Want experienced Construction Engineer-Estimator-Superintendent to form corporation or partnership. Small investment invited. Replies confidential. BO-2307, Engineering News-Record.

PERSONAL

Would like

to know present whereabouts of A. F. Enarud, Structural Engineer, Richard T. McKay, 1906 Berry St., Houston 4, Texas.

PATENT ATTORNEY

Patent Practice

before U. S. Patent Office. Validity and infringement investigations and opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommell, Registered Patent Attorneys, Suite 454, 815-15th Street, N. W., Washington 5, D. C.

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10" HYDRAULIC DREDGE PARTS:

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2133 ft. of #2, 5,000 volt, 3 conductor and ground, mine power cable, GE #SI58292 coronal Geoprene. New, never used.

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FOR SALE

1—Buckeye Power Control Unit for AC—HD14, Model GLT, Ser. #H5855

1—Bucyrus-Erie, Power Control Unit, Model P-28, Serial #63527

4—Firestone Earthmover-Type Tires Size: 24x32 —36 Ply . . . Reasonable

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SHOVELS — CRANES

Lorain 41 heavy duty ¾-yd crawler shovel & crane, new 1947, wt. 45,800 lbs.
Lorain 40A ¾-yd comb. shovel, clam & crane.
Lorain 40 truck crane, Waukesha engine, mounted on Mack chassis.
P&H Model 255A crawler shovel.
Insley K-12, ½-yd shovel, New 1947.

SHOVEL & CRANE ATTACHMENTS

1¼—1½-yd 50' clam boom for Lorain, Lima or Northwest.
Chain crowd L-40-41 shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Lorain 40 Hi-Lift shovel attachment.
Bucyrus-Erie 30B tunnel front attachment.
Koehring 301 dragline fairlead.

Backhoe Buckets & Attachments

¾-yd Lorain, 40, LBS#6105, 44" cutting width, teeth, sheave.
27" outside width drop bottom type LBS #1033, good condition.
26" outside width solid bottom type LBS #4377, good condition.
¾-yd Amsco 40" cutting width, LBS #8101.
Lorain 30 hoe attachment.

NEW TAGLINES

McCaffrey Model 648 for 1¼ to 2-yd crane.
McCaffrey Model 636 for ¾-yd to 1-yd crane.

SHOVEL DIPPERS

Lorain 41, ¾-yd, LBS #7433, new condition.
New Lima 1-yd, Amsco, LBS#2295.
Bucyrus-Erie 1¼-yd gas air, LBS#3782, fair.
Lorain 75 manganese 1¼-yd, LBS#7233, teeth and bail.
Lorain 75B, 1¼-yd extended lip, 1¾-yd LBS#2260.
Pettibone-Mulliken 2-yd Lorain 82 or 820, manganese, LBS#5361.
Pettibone-Mulliken 2-yd for 3500 Manitowac LBS#5763.

CLAM—DRAG—SCRAPER BUCKETS

AIR COMPRESSORS

Worthington two-stage, water cooled, vertical 250#, 60 CFM, new condition.
Gardner-Denver, 105 foot, with air receiver, hose reel, driven by power take-off and mounted 1941 Ford.
Gardner-Denver air-cooled 105 foot with receiver, V-Belt driven from power take-off and mounted on 1942 Ford chassis with Wood two-yard dump body.
Gardner - Denver 2 - stage 160 ft., skid Mtd.
Worthington 210 cubic foot, two-stage air-cooled, on steel wheels, Hercules diesel.
Chicago Pneumatic 210 cubic foot, two-stage, air-cooled, Caterpillar diesel on four rubber tired wheels.
Gardner-Denver 315 cu. ft. two-stage, skid mounted, Murphy four-cylinder diesel.
Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven, 50 HP slip ring motor.

QUARRY EQUIPMENT & BINS

New Telsmith 84"x10' super scrubber—Special price.
10 x 36 Farrell deep jaw crusher.
10 x 36 Cedarapids, practically new.
10 x 7 Allis Chal. Blake type jaw crusher.
Williams 20-S pulverizer.
Cedarapids No. 1 Kubit.
60 ton 2 compartment storage bin with clam shell gates.
New 16 x 16 double clamshell gates.
20" x 6'6" Belt Type Magnetic Separator.

TRUCKS—TRAILERS

1½-ton Ford & Chevrolet.
2½-ton GMC, New and rebuilt.
Sterling COE Model 255GCS tandem drive tractor, 9.00x24 tires, 200 HP Cummins supercharged diesel, complete with 40-ton Rogers low bed equipment trailer, 16—7.50 x20 tires, airbrakes, outriggers, excellent condition.
2,000 gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.
6x6 7½-ton Reo

GASOLINE AND DIESEL ENGINES

New JXD Hercules Gasoline.
Buda, Hercules, Hill diesels, rebuilt.
New Murphy 4 and 6 cylinder diesels.
GM 6 and 12 cylinder diesels, practically new.

CONCRETE ROAD BUILDING & MISCELLANEOUS CONCRETE HANDLING EQUIPMENT

Pavers & Mixers

Ransome 34E dual drum, new October, 1943, with 36'9" boom, 1000 gallon auxiliary water tank, Cummins engine, rebuilt.
27E Koehring Paver.
Jaeger 3-yd hi-discharge truck mixer.

Concrete Finishers

Jaeger type "L" double screed, 10½'-12½', rebuilt.
Heltzel 10'-12' finisher, rebuilt.
Blaw-Knox gas-electric 10½'-12½', rebuilt.
2 Koehring 10'-12', rebuilt.
Koehring 10'-16' finisher, rebuilt.

Concrete Spreaders

Blaw-Knox type SA 10'-15' spreader, new 1943. New condition.

Concrete Road Forms

830'—Truscon 7"x8" forms, with stakes.
1380'—Heltzel 7"x8" forms, with stakes.
1300'—Blaw-Knox 8"x8" forms, with stakes.
4450—Heltzel 9"x8" forms, with stakes.
1430'—Heltzel 10"x8" forms, with stakes.
1010'—Blaw-Knox 10"x8" forms, with stakes.

Fine Grade Machines

Flynn surgrader 10'-12', rebuilt.
R.B. Fine Grader for 21' width, rebuilt.

Form Graders—2 of each

Cleveland formgrader, new condition.
Carr formgrader, new 1944, rebuilt.

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New 18"—24"—30"—36"
- "Sealed-for-life" idlers
- Lattice or channel frame
- Shipment from stock depending on length

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1½ KW to 125 KW, alternating and direct current, gasoline and diesel powered.

GRADERS

New Warco D7E tandem driven grader, 12' blade, V-type scarifier, 13.00x24 tires all around, 24,500 lbs., International UD14A diesel engine.
York Corporation Model SR drawn grader with scarifier, 8' blade, rakes, pneumatics, wt. 7,900 lbs.

DIESEL POWERED TRACTORS

"FD" Cletrac with Buckeye blade and double drum P.C.U.

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DRAG SCRAPER OUTFIT: Sauerman 2 yd. Crescent Drag Scraper Outfit complete with 150 H.P. motor and controls.

CRUSHING ROLLS: 1—Set 54" dia., 20" face, manganese smooth shells, V-belt pulleys. New condition.

NEW OVERHEAD CRANES: 2—10 ton capacity, 62 ft. span, 3 motor type, 3 phase, 60 cycle, 440 volt. NEW condition.

BUCKETS: 10—Steubner, 42 cu. ft. controllable, self-clearing, drop bottom, Concrete Buckets.

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SHOVELS & DRAGLINES: Bucyrus Erie 120-B, 4 yd. rock dipper, with or without dragline attachments, 2200 volts, A.C., Ward Leonard control.

Monighan Walker Dragline, 9W, electric, 200 ft. boom, 8 yd. bucket.

Lima 1201 Diesel Shovel, 3 yd. capacity.

DIESEL TRUCKS: 1947 Euclid, 22 ton, model 13TD, end dump, rock bodies, 275 H.P. Buda diesel motors.

BLAST HOLE DRILLS: 2—Bucyrus Erie 29T diesel powered, both with 9" bits and tools and with or without Bucyrus Erie 12T Bit Dresser with auxiliary equipment.

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1—8' dia., 6'6" face, 600 FPM, 1000 H.P., 1½" rope, 2200 volt, 450 RPM.

1—All steel, drum 8 ft dia., 1½" rope, 64,000 lbs. single line pull, 600 FPM, 400 H.P., 2200 volt, A.C.

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All the above Hoists complete with control equipment.

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3—Lima Type 34 Lifting Cranes, Gas & Diesel Power

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EXCAVATORS

1—Lima 1201 Dragline Cummins Diesel 80' Boom 3½ yd. Hendrix Bucket

1—Buckeye Model 70 Backhoe

1—Insley K-12 Hoe-Drag

TRACTORS

1—AC Bulldozer HD-7 with Gar Wood Blade

1—TD 14 International with Bucyrus Erie Dozer Blade

1—D8 Caterpillar with LeTourneau Bulldozer

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FS-1874, Engineering News-Record
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Int. TD18 with Trailbuilder angledozer

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Manitowoc 3000A, 1-3/4 yd Shovel-Dragline.
Marion Model 37 1-¾ yd. Elec. Shovel.
Page 621B Dragline, Diesel, 6 yds., 135' boom.
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Lorain Model 82 Diesel Shovel, 2 yds.
Lorain Model 820 Diesel Crane, 40 ton cap. 90' bm.
P&H Model 1055 Diesel Dragline, 80' boom.
Lima 1201 High Lift Diesel Shovel.
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Buc-Monighan 6 to 8 yds. Diesel Dragline.
Buc-Erie 120B 4 to 5 yds. Elec. Dragline.

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Gallon Model 101 Grader.
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American stiff leg 40 to 50 tons 80' boom.
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1—2¼ yd. Mdl. K370 Link Belt Diesel Crawler Crane #2215, with 50-65-70 or 80' boom and 17'6" jib, high gantry, hydraulic controls, D17000 engine. Will handle 47½ ton. Weight 148,000#.

1—1¾ yd. Link Belt Model K370, Ser. No. 2247, equipped with 70' boom, powered by Cat. D13000 Diesel engine.

1—1⅝ yd. Lorain Model 80, No. 10750, with 65' boom, powered by Waukesha-Hesselman diesel engine.

1—1½ yd. P&H Model 655-A, combination shovel, dragline and crane, Ser. 6426, powered by Caterpillar Model D13000 Diesel engine. Crane boom 75', shovel front 24' boom, 18' sticks, 1½ yd. manganese dipper.

1—1½ yd. Link Belt Model K360, Ser. No. 1959, powered by Caterpillar D13000 Diesel engine with 65' boom. Also have back hoe attachment, boom 25' scoop arm 8'9", pull shovel mast 11'9", with 1½ yd. dipper.

1—1¼ yd. #5 Northwest Ser. No. 4564, Powered with 6 cyl. Wisc. Model D84 gasoline engine. With 60' boom.

1—1¼ yd. Link Belt Model K38 crawler crane, Ser. No. 1520. Powered with 4 cyl. Model WL-51-B Waukesha gasoline engine with 50' boom.

1—1 yd. Erie Gas-Air Model GA-2 combination shovel and crane, Ser. No. 10679, powered with 4 cyl. Waukesha Model WL55 gasoline engine, with 47' crane boom. Shovel boom 23', sticks 17' with 1 yd. dipper.

2—⅝ yd. Koehring Model 301, Ser. Nos. 544, and 840. Powered by 4 cyl. Wisconsin Model M gasoline engines. With 40' boom.

1—⅝ General Model 307, Ser. No. 2575, powered by 71 HP 8 cyl. Chrysler Industrial engine, with 40' boom.

1—⅜ yd. Buckeye Model 70, Ser. No. 5409 with 40' boom, powered by 71 HP Chrysler industrial gasoline engine.

WE OWN 15 CRANES NOT SHOWN ON THIS LIST. SEVERAL CRANES LISTED ARE IN OUR RENTAL DEPT. ONLY.

SPECIAL SALE CONTRACTOR'S EQPT.
1—¾ yd. Bucyrus Erie crawler crane, Mdl. 10B; 1 horiz. auger, max. hole 16" diam., 40' long, mfd. by Kamo Tools, Inc.; 1 Caterpillar model 40 diesel tractor with Athey bulldozer; 1 Caterpillar model 50 diesel tractor with 5 yd. Austin-western scraper; 1 Minneapolis Moline wheel type tractor, rubber tired with ¾ yd. front end loader; 1 Scoopmobile, Model B, pneu. tired with ¾ yd. scoop bucket; 1 Parsons model 31 ditcher, dig 20" wide, 13' deep; 1 Parsons model 21 ditcher, dig 20" wide, 9' deep; 1 Austin back-filler. Crawler mounted, 30 ft. boom; 1-700 ft. Chgo.-Pneu. portable air compr., model WO2, diesel powered; pneumatic tires; 1-20 ton 2 compartment CMC bin with batchers, like new; 1 Quonset steel hut, ground area 16 x 24'; also lot misel. items, trench braces, concrete mixers, manila rope, air hose, picks and shovels, pneu. tools, pumps, welders, etc.

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1—35 ton Ohio, Mdl. G. Ser. No. 3950, boom 50', ASME boiler, cast steel trucks, outriggers.

1—15 ton Link Belt Ser. # 678, ASME boiler, 45' boom. Bargain.

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1—15 ton Vulcan std. ga. locomotive. Ser. No. 3903. With special MCB couplings. Powered by 6 cyl. LeRoi Mdl. JM8 gasoline engine. Equipped with 4-wheel air operated brakes with 2 cyl. Westinghouse air compressor. Complete with starter and generator.

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1—Brookville—8 ton Gas—Std. Ga—Bargain
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Both locomotives in excellent condition and attractively priced.

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DERRICKS
2—American S.L. 10 ton, 75' boom
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25—70 ton—4 pocket—Hopper Cars.

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2—Browning 30 ton Steam Loco. Cranes—#3837—8—New 1944. Used very little.
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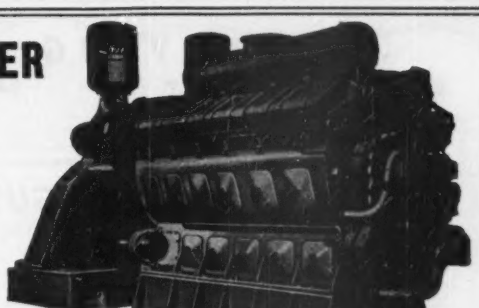

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1—NORTHWEST SHOVEL, Model 80-D, 2½ Cu. Yd., Serial No. 12505 with Murphy 6 cyl. diesel engine, Kohler Light Plant, reflectors with 27' 6" Boom, 22' 6" Sticks, 4 Cu. Yd. Coal Loading Bucket or 2½ Cu. Yd. Digging Bucket. Year 1947.

1—NORTHWEST SHOVEL, Model 70, 1¾ Cu. Yd., Serial No. 5768 with Murphy 6 cyl. diesel engine, Kohler Light Plant, reflectors with 33' Boom, 28' Sticks, 1¾ Cu. Yd. Dipper. Year 1939.

1—BUCYRUS ERIE SHOVEL, Model 54-B, 2 Cu. Yd., Serial No. 41559 with Buda Lanova Diesel Engine, 45' Boom, 32' Stick, Kohler Light, Year 1945.

1—LIMA SHOVEL, Model 1201, 2½ Cu. Yd., Serial 5313 High Lift Shovel, 42' Boom, 32' Stick, 1500 Watt Kohler Light Plant, Cummins Diesel Motor Type L, Year 1948.

1—MARION SHOVEL, Model 151-M, 6 Cu. Yd., Serial 8431, Electric Shovel 3/6/2300-4000 volts, with 38' Boom, 32' Stick. Also 45' Boom, 32' Stick and 5 Cu. Yd. Bucket, Year 1946.

1—LORAIN SHOVEL, Model 820, 2 Cu. Yd., Serial No. 15766, with Caterpillar D-13000 Engine with Kohler Light Plant, 23' Boom, 18' Stick, with 3 Cu. Yd. Coal Loader or Standard 2 Cu. Yd. Dipper. Year 1947.

1—NORTHWEST SHOVEL, Model 6, 1½ Cu. Yd., Serial No. 12699, with Murphy 6 cyl. diesel engine, Kohler Light Plant, reflectors, with 25' Boom, 24' Sticks, 1¾ Cu. Yd. Bucket, Year 1947.

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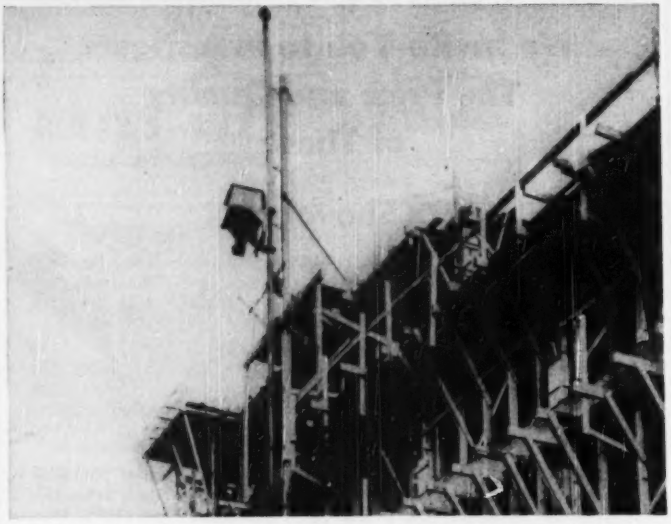

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Midget-Size Tractor and 'Dozer

Light-duty gasoline-powered tractor has a combination scoop and bulldozer blade. All operations are controlled through a built-in hydraulic system. The scoop is 36 in. wide, 14 in. deep, and 12 in. high. Speed range of the Mighty Mouse is ½ to 6 mph, forward or reverse. Dimensions: Width at treads, 36 in.; length, including yoke and scoop, 77 in.; height at hydraulic ram, 29 in.; width of treads, 7 in.; bearing area on ground, 532 psi; drawbar pull, 800 lb; and weight, 800 lb. Power unit is rated at 5 hp.—MEAD SPECIALTIES CO., DEPT. MM-45, 4114 N. KNOX AVE., CHICAGO 41, ILL.

Photo-Copying Device

The Contoura is a compact photographic copying device designed particularly for copying bound material. This is made possible by a pneumatic cushion which conforms the photographic paper to the contour of the material being copied. Can be used to copy opaque or translucent originals, or translucent material with subject matter on one side only. A mirror on the Contoura simplifies reading reversed negatives produced by the reflex method. Exposed sheets are developed by standard photographic processes.—F. G. LUDWIG ASSOCIATES, WOODBRIDGE, CONN.

Street-Light Transformer

New Stancor units are designed to operate in series street-lighting circuits of the constant-current type, each unit inductively coupling the high-voltage series circuit to an individual incandescent lamp operating at a comparatively low voltage and high current. Two types are available—the SSLP for pole mounting, and the SSLV for vault and manhole mounting. The vault or pole-base type permits installation of high-voltage high-efficiency series circuits in areas where high-voltage conductors are not permitted above ground.—STREET LIGHTING DIVISION, STANDARD TRANSFORMER CORP., 3580 ELSTON AVE., CHICAGO 18, ILL.

Stripe Painter

Line marker paints straight, curved, continuous or skip lines, or lettering. Light in weight, the Handi-Liner has no moving parts and is quickly cleaned by flushing with gasoline or paint thinner. It paints lines approximately 3⅞-in. wide using any good traffic or linemarking paint. Paint flows by gravity and forms a solid line as the Handi-Liner is pushed forward. Fow is controlled by means of a shut-off valve which is conveniently located at the handle.—LASTING PRODUCTS CO., 200 S. FRANKLINTOWN ROAD, BALTIMORE 23, MD.

Exhaust-Pipe Cover

Made of strong non-rusting pressure-die cast aluminum, the Sol-Hot exhaust shield fits all vertical exhaust pipes up to 3½-in. dia. Special adapter ring is available for use on larger-diameter pipes. The Sol-Hot is designed to keep harmful rain, dirt, and foreign material out of exhaust pipe and manifold. Prevents rusting of valves, flooded pistons, expensive repairs, and deflects exhaust fumes away from the operator. The Sol-Hot automatically opens when engine is started and closes when engine is shut off.—H. M. SHEER CO., QUINCY, ILL.

(Continued on page 127)

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Gow subsoil investigations are insurance against costly foundation errors, especially when the borings are made before the site is purchased.

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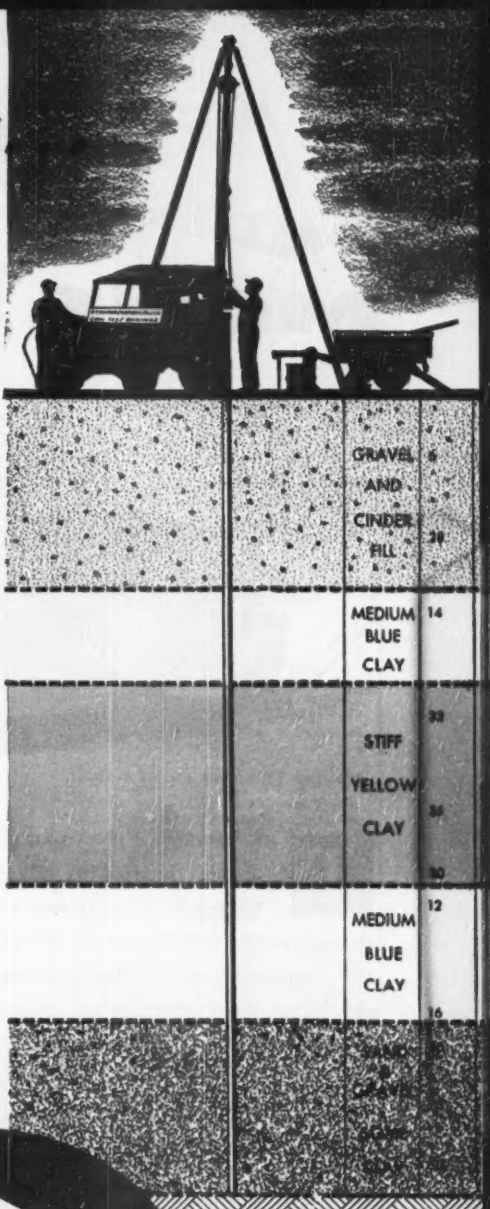

Figures in right hand column indicate number of blows required to drive sampling pipe one foot, using 140 lb. weight falling 30 inches.

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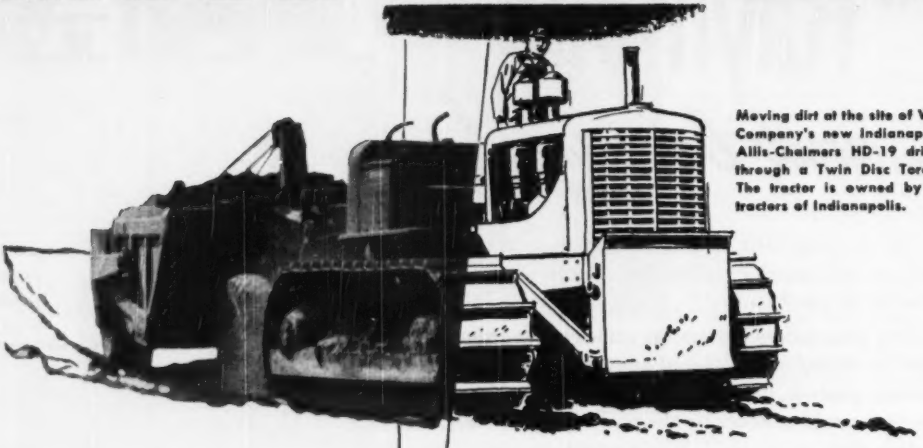

Moving dirt at the site of Western Electric Company's new Indianapolis plant, this Allis-Chalmers HD-19 drives its power through a Twin Disc Torque Converter. The tractor is owned by General Contractors of Indianapolis.

THE *freedom* it gives your driver is only one of the striking advantages of a tractor in which power is transmitted through a Twin Disc Hydraulic Torque Converter . . . *freedom* from constant wrestling with gear shift levers, from clutching and de-clutching . . . *freedom* to pay more attention to the work of his machine, which pays off in more dirt moved.

Your driver can give his full attention to the job because a Twin Disc Torque Converter (Lysholm-Smith type) *automatically and instantly* selects exactly the right power for any given pull . . . provides an infinite number of power ratios . . . *actually multiplies torque of the engine up to five times.*

Besides sparing your driver's attention from operations that can be better performed automatically, the Twin Disc Converter also spares your tractor and engine from costly lay-up time . . . because the torque converter provides a flexible, *fluid link* between the engine and tracks to absorb ruinous starting jerks and bumpy ground jolts.

For more information on the Twin Disc Torque Converter, write for Bulletin 135-C. TWIN DISC CLUTCH COMPANY, Racine, Wisconsin (Hydraulic Division, Rockford, Illinois).

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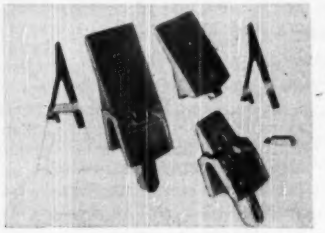
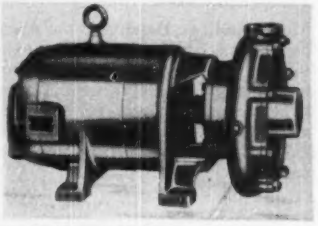
Tournapull With 'Dozer Blade

Bulldozer blade is designed to increase versatility of the Model D Roadster Tournapull. It is cable-activated and electrically controlled by a switch mounted on the dash-control panel. The blade has a bowl length of 6 ft. 8¾ in. and a height of blade and bowl of 32½ in. Its cutting edge is reversible, with hard-surfaced replaceable tips. Blade can be raised 3 ft above the ground.—R. G. Le Tourneau, Inc., Peoria, Ill.



Long-Wearing Shovel Teeth

Replaceable shovel teeth which lock rigidly to adapters feature a patented triple-locking design which distributes digging stresses over a large locking area. The Baer teeth are cast from Fibraloy, a tough, shock-resistant steel. The locking feature consists of two heavy tongues, one on top and one at the bottom of the point shoe, where they are received by mating slots at the base of the adapter horn. Tongues and slots, horn and shoe, are wedged solidly together by a tapered pin driven through the assembly and securely locked by bending its malleable tip into a special recess. Shock resistance remains high at sub-zero temperatures.—Baer Steel Products, Inc., Auburn, Wash.



Centrifugal Pumps

Alta line of centrifugal pumps includes both close-coupled and pedestal-mounted models. They can be used with water and all liquids and solutions having a viscosity up to 2,000. Among the features are: Pressure at the stuffing box has been relieved by means of balance rings, preventing rapid wear-out of packing rings; stainless-steel shaft sleeve is not subjected to heavy wear in cases of higher pressures at the stuffing box; and pumps act quietly at higher suction lifts. All G-R standard centrifugal pumps can be interchanged on different sizes of electric motors as well as on power frame without alterations of shaft and flange mountings. Materials include cast iron, bronze, bronze-fitted, special alloys.—Gorman-Rupp Co., Mansfield, Ohio.

PLASTIC BRISTLES FOR STREET CLEANING—Rotary type power street cleaning equipment is now being tested in several cities using a new plastic bristle 26 in. long. The plastic bristled rotary cleaners are now under test in Los Angeles and Glendale, Calif. and in Chicago, by street maintenance and engineering departments. The life of the plastic bristle is said by its manufacturers, Modglin Co., Inc., Los Angeles, to have a life expectancy much longer than bassine, palmyra, split bamboo, hickory or other natural fibers now in use. It is claimed also that the bristles will not absorb water and will wear evenly.

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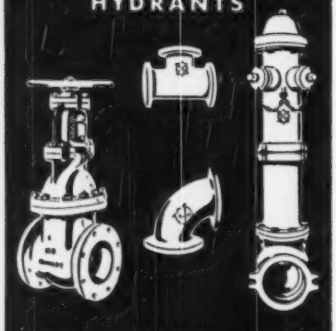

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MANUFACTURERS' PUBLICATIONS

Underground-Pipe Insulation—Revised version of brochure describes Z-Crete underground-pipe insulation. Method of insulating underground hot lines with a continuous system of lightweight concrete is fully described and illustrated in the brochure.—ZONOLITE CO., Z-CRETE DIVISION, 135 S. LASALLE ST., CHICAGO 3, ILL.

Metal-Painting Handbook – Factual handbook is devoted to a discussion of the problems involved in metal painting. Subjects covered include: Theory of corrosion; function of red lead; manufacture, types, and grades of red lead; formulating requisites; surface preparation; application; practical examples; Dutch Boy metal-paint products; and formulas and specifications.—NATIONAL LEAD CO., DEPT. MPR, 111 BROADWAY, NEW YORK 6, N. Y.

Tractor Service Manual—Instructions for proper operation, maintenance, and repair of Allis-Chalmers HD-5 crawler tractors are contained in a 220-p. service manual. Divided into 23 sections, Sections 1 through 19 feature a general description of the tractor; Section 22 is devoted to the application and use of a special tools required in making repairs; Sections 21 and 22 are devoted to general maintenance instructions and fits and tolerances; and Section 23 contains trouble-shooting information and indicates tests which can be made to help determine causes of mechanical difficulties. Cost of the manual is $3.00. — ALLIS-CHALMERS MFG. CO., TRACTOR DIVISION SERVICE DEPARTMENT, BOX 512, MILWAUKEE 1, WIS.

Spex for Architectural Aluminum—Brief, authoritative information to assist in the design and fabrication of aluminum products is contained in Standard Architectural Specifications. These standards cover product applications, materials for ornamental work, finishes made of aluminum, and general guide of architectural specifications.—ALUMINUM CO. OF AMERICA, GULF BLDG., PITTSBURGH 19, PA.

Elevated Water Tanks – Steel and wood elevated water-supply tanks are described in two new bulletins. Bulletin W-66 describing wood tanks contains information on advantages of elevated tanks; design, construction, and erection of wood tanks; kinds of wood used; and the various accessories available for use with them. These tanks are designed for use on steel towers or on buildings. Bulletin S-55 on steel tanks contains information on details of construction of a typical tank, capacity information on tanks with hemispherical, ellipsoidal, or double-ellipsoidal bottoms, and lists several types of installations.—W. E. CALDWELL CO., INC., 200 E. BRANDEIS, LOUISVILLE 8, KY.

Engines for Pumps—Features of diesel and electric sets for powering pumping equipment are listed in a 12-p. catalog. These features are: Independence of operation, long life, economy, portability, flexibility, and dealer service. Form 12484 contains job data and photographs specifically designed to illustrate each of these features. — CATERPILLAR TRACTOR CO., PEORIA 8, ILL.

Aerial Surveys – Engineering services offered by a firm of photogrammetric engineers are described in a new catalog entitled "Air Speeds to Your Map Needs". The booklet explains what photogrammetry is, describes the Ammann organization, shows typical examples of aerial surveys and maps, explains the making of topographic maps and precise aerial mosaics, and lists other informative data. — JACK AMMANN, 829 N. ST. MARY'S ST., SAN ANTONIO 2, TEXAS.

Water and Oil Meters – Pocket-size reference contains information on a line of meters and accessories. Types of meters listed include both disk and turbine models. Other equipment listed includes portable test meters, yokes, compounding valves, dial extensions, strainers, and visible-flow indicators. The final part of the booklet is devoted to engineering data and conversion charts relating to the use of meters and liquid flow.—BADGER METER MFG. CO., 2357 N. 30TH ST., MILWAUKEE 10, WIS.

Gasoline, Diesel Generators—Two catalogs issued by Onan, describe the company's line of diesel and gasoline-driven electric plants. Folder A-168 (8 pp.) describes the gasoline plants ranging from 260 to 35,000 w, in all standard voltages, frequencies, and phases. Direct-current models in standard voltages and capacities from 750 to 15,000 w are also described; as are battery-charging plants in 6, 12, and 32 v sizes with capacities of 400 to 2,000 w. A model guide and general information section explains the difference in the three types of units, and provides information for choosing proper type, size, and starting method. Folder

(*Continued on page 130*)

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A-192 (4 pp.) lists the diesel units. These range from single-cylinder 2,500-w air-cooled units to 6-cylinder 60,000-w water-cooled plants. Important information concerning parallel operation, automatic controls, optional equipment, and choice of models is included.—D. W. ONAN & SONS, INC., 5392 ROYALSTON AVE., MINNEAPOLIS 5, MINN.

Special Alloy Steel—Brochure (36 pp.) lists case histories of applications of Jalloy heat-treated steel in earth-moving, construction, and other industries. Jalloy is recommended for any application where abrasion and impact resistance are major factors in service life (shovels, drag buckets, dipper sticks, grader blades, dump-truck bottom-liner plates, sand and gravel chutes). Complete technical data, with tables, provide information on physical properties relating to surface hardness, yielded strength, and others. —JONES & LAUGHLIN STEEL CORP., 428 JONES & LAUGHLIN BLDG., PITTSBURGH 19, PA.

Clarifiers—Spiraflo clarifiers are listed in a 24-p catalog. These clarifiers operate on the principle of peripheral feed and center collection in combination with upward flow. The bulletin contains a description of the Spiraflo units, and lists 14 advantages claimed for them. Complete engineering information is provided, amplified by tables, charts, and drawings. Photographs show typical installations.—LAKESIDE ENGINEERING CORP., 222 W. ADAMS ST., CHICAGO, ILL.

Heavy-Duty Scalper—Four-page bulletin describes and illustrates a vibrating machine designed to scalp-off lumps of solid rock as large as 5x5x5 ft and weighing 14 tons, or more. The scalper is said to absorb the weight of this impact so completely that vibration is not felt in its base or imparted to supporting structures. — ROBINS CONVEYORS DIVISION, HEWITT-ROBINS, INC., 270 PASSAIC AVE., PASSAIC, N. J.

Pneumatic-Tired Roller—Compaction data relative to the use of pneumatic-tired rollers are contained in a 4-p. folder. The folder lists degree of compaction obtained in 5 passes when using rollers with weights of 12, 25, 35, and 50 tons. Folder RE-68 also contains a comparison chart listing degree of compaction obtained with pneumatic-tired and sheepsfoot rollers. Specifications are listed for the Bros Model 435 (35-ton capacity) and the Model 450 (50-ton capacity) pneumatic-tired rollers. — WM BROS BOILER & MFG. CO., 1057 TENTH AVE., S. E., MINNEAPOLIS 14, MINN.

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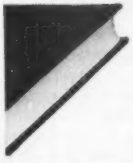

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READER COMMENT

How Canada Fosters Welding

Sir: The Canadian Welding Bureau was formed about three years ago just to establish the conditions necessary for confidence in welding that your survey (ENR Dec. 15, p. 23) has confirmed as necessary. It was created as an approvals division of the Canadian Standards Association, which had been requested by municipalities, structural interests and others to set up codes of good welding design and practice. And further, it was to qualify and list those fabricators and contractors able to meet such standards inasmuch as they had: adequate equipment, tested and approved operators, capable supervisors and an engineering staff competent to design, specify and control the welding procedure used.

Since that time, it has become the practice of the principal cities of Canada to specify that structural work within their jurisdiction shall be designed to CSA Welding Standards and fabricated by a firm approved to the appropriate code by the Canadian Welding Bureau. In other words, the necessary confidence was created by providing adequate assurance.

This same lack of confidence that was particularly noticeable among structural engineers and city officials had a considerable influence on other engineers and buyers who might otherwise have specified or accepted welded products in different lines of construction and manufacture. The reticence that these men also displayed is noticeably disappearing now. They are aware that structural welding is more generally accepted and that they themselves can, by the use of standard specifications, ensure that their purchases meet recognized requirements.

Fortunately, these standards are the only ones in existence in Canada, and their nationwide acceptance is proving beneficial and economical to all interests concerned. This is particularly true of the fabricators, who find economy in the use of one standard throughout the country.

The operation of the bureau has indicated that the lack of confidence exhibited here and there was in some cases justified. Many operators failed their initial tests in some works. Supervisors were not always deemed sufficiently competent, and in other instances, the responsible engineers lacked dwelling knowledge and experience. This latter condition was overcome through a provision of the code that permitted a firm to retain a welding consultant for the purposes of approval. It was found that being subject to test soon raised the operators' level of proficiency.

More difficulty was experienced in approving supervisors and in devising means for improving their knowledge and ability. Although not among the original purposes of the bureau, some educational activity was considered necessary. This took the form of a correspondence course, supplemented by lectures.

With the confidence engendered in welding in this manner, its use is certainly increasing. Fabricators are finding that their costs are reduced with experience, and they are now embarking on projects of a type that previously they would not have considered profitable.

R. M. GOODERHAM
General Manager
Canadian Welding Bureau
Toronto, Ontario

River Diversions

Sir: Recent publicity about the grandiose project of the Russians to divert the flow of two Siberian rivers for irrigation purposes in the area east of the Caspian Sea as recently described in LIFE, aroused a little curiosity in my mind about a similar project in the northern part of the Province of Ontario a few years ago, which proposed to re-direct the flow of the Albany River into Lake Nipigon and thence into Lake Superior for the purpose of increasing the water level for navigation purposes in the Great Lakes.

We in the Great Lakes area were quite concerned several years ago about the low level of water in the Great Lakes, particularly in Lake Erie, and all navigation people were concerned because of the traffic restrictions due to low water in the Detroit River. The natural cycle of the water level in the Great Lakes and the deepening of the channel of the Detroit River have temporarily eased the water level situation in the Great Lakes, so the above project may not be of particular interest at the present time.

My recollection is that one of the reasons why it was deferred was that there was some concern that such a large volume of very cold water from northern Ontario diverted into the Great Lakes might have an adverse effect on the climate in this part of the country. (The total cost apparently was never even estimated.)

Reading a recent dissertation on the operation of the plutonium plant at Hanford, Washington, which requires so much cooling water that it raised the temperature of the Columbia River, leads to the thought that in the future such a plant might be constructed in the area between Lake Superior and Lake Nipigon to make the diverted water warm enough so that it would help our climate in this part of the United States by making it warmer instead of making it colder. The only purpose of this letter is to inquire if anything has been done on the project and whether or not there is any thought being given to its ultimate accomplishment. It apparently had considerable publicity some years ago, and as I recall, some exploratory expeditions even went far enough to make preliminary appraisal of the timber resources in the area to be flooded. At least it is an interesting project from an engineering standpoint. If you have any information on this project or any comments, I would appreciate hearing from you.

J. B. JOHNSON
Vice President
The Ohio Pubic Service Co.
Elyria, Ohio

EDITOR'S NOTE—The diversion of waters from the Hudson Bay drainage basin into the Great Lakes basin was begun in 1941 by the Hydro-Electric Power Commission of Ontario. At the present time about 5,200 cfs are being diverted southward into Lake Superior.

There are two points of diversion. One is from a lake formed by a dam on the Ogoki River, a tributary of the Albany River. This water goes into Lake Nipigon and down into Lake Superior through the Nipigon River where it is used in power plants of the Ontario Hydro. The other diversion is from Long Lake, which is the source of another tributary of the Albany River. It comes down into Lake Superior through the Aquasabon River. That water is used both for power and for transportation—to bring pulpwood down into Lake Superior.

At Niagara Falls the Ontario Hydro draws an amount equal to the diversions into Lake Superior for power development.

Water brought into Lake Superior through Lake Nipigon and Long Lake would have no material effect on the temperature of that great body of cold water. For five or six months of the year the water added would be WARMER rather than colder than the great bulk of the water in Lake Superior, which never gets but a few degrees above freezing except near the surface and in bays.

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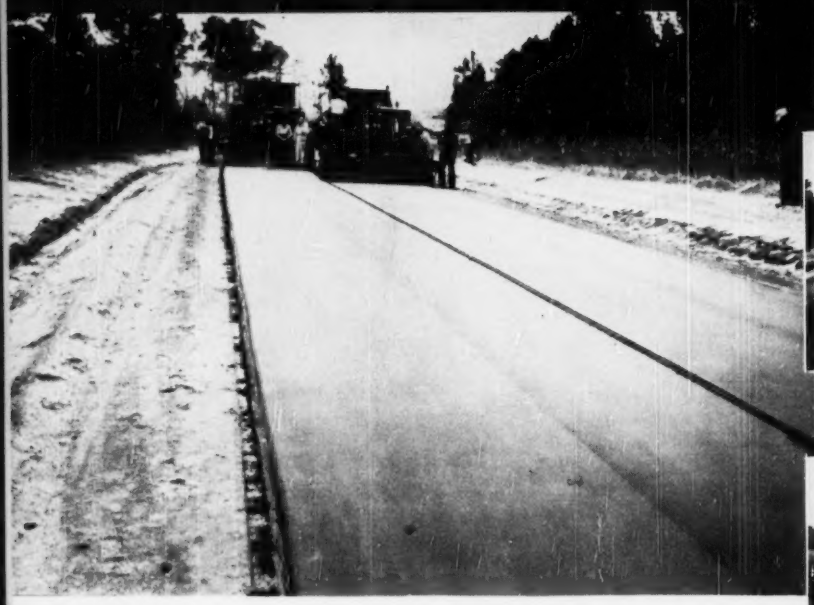

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